2024.01.29



CONCEPT PLANT SCHEDULE

DECIDUOUS TREE — 101
Celtis occidentalis / Common Hackberry
Cercidiphyllum japonicum / Katsura Tree
Ginkgo biloba 'Autumn Gold' / Autumn Gold Maidenhair Tree
Gymnocladus dioica 'Espresso' / Kentucky Coffeetree
Quercus bicolor / Swamp White Oak
Quercus x schuettei / Swamp Bur Oak
Ulmus americana 'Princeton' / Princeton American Elm

EVERGREEN TREE — 36
Abies concolor / White Fir
Picea abies / Norway Spruce
Pinus strobus / White Pine
Pseudotsuga menziesii / Douglas Fir
Thuja occidentalis 'Dark Green' / Dark American Arborvitae

ORNAMENTAL TREE — 74
Amelanchier x grandiflora 'Autumn Brilliance' / Autumn Brilliance Apple Serviceberry
Carpinus caroliniana / American Hornbeam
Cercis canadensis / Eastern Redbud
Hamamelis virginiana / Common Witch Hazel
Malus x 'Adirondack' / Adirondack Crabapple
Malus x 'Purple Prince' / Purple Prince Crabapple
Syringa reticulata 'Ivory Silk' / Ivory Silk Japanese Tree Lilac

UPRIGHT EVERGREEN TREE — 66
Juniperus chinensis 'Mountbatten' / Mountbatten Juniper
Juniperus x 'J.N Select Blue' / Star Power® Juniper
Thuja occidentalis 'Smaragd' / Emerald Green Arborvitae

GRAVEL

NATIVE SEEDING

PLANTING BEDS
TO CONTAIN GROUNDCOVER PLUGS PLANTED 12" OC AND 3" HARDWOOD BARK MULCH

TURF

EXISTING STREET TREE

EXISTING WOODS TO REMAIN

LANDSCAPE GENERAL NOTES:

1. VERIFY EXISTING AND PROPOSED CONDITIONS, UTILITIES, PIPES, AND STRUCTURES, ETC. PRIOR TO BIDDING AND CONSTRUCTION.
2. INSPECT THE SITE PRIOR TO COMMENCING WORK. DOCUMENT IN WRITING AND PHOTOGRAPH EXISTING CONDITIONS WITHIN, AND IN AREAS ADJACENT TO THE LIMITS OF CONSTRUCTION. THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGES NOT DOCUMENTED IN THE PHOTOGRAPHS PRIOR TO COMMENCEMENT OF DEMOLITION ACTIVITIES.
3. COORDINATE THE INSTALLATION OF PLANT MATERIAL WITH INSTALLATION OF ADJACENT PAVEMENTS, DRAINAGE, CURB RELATED STRUCTURES WITH OTHER TRADES.
4. RESTORE AREAS OF THE SITE, OR ADJACENT AREAS, WHERE DISTURBED. DAMAGE CAUSED DURING LANDSCAPE INSTALLATION TO EXISTING CONDITIONS AND IMPROVEMENTS IS THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR.
5. CONTRACTOR SHALL THOROUGHLY REVIEW ALL SPECIFICATIONS RELATED TO TREE PROTECTION, SOIL PREPARATION, TURF, GRASSES AND PLANTS. THESE SECTIONS PROVIDE ADDITIONAL INFORMATION ON MATERIALS AND SET STANDARDS FOR QUALITY AND INSTALLATION REQUIREMENTS.
6. PROVIDE 3" DOUBLE SHREDDED BARK MULCH FOR ALL PLANTED TREES, SHRUBS AND LANDSCAPE BEDS.
7. ALL BUILDINGS TO RECIEVE 18" STONE MAINTENANCE STRIP ALONG FOUNDATION.

TO OBTAIN LOCATIONS OF PARTICIPANTS UNDERGROUND FACILITIES BEFORE YOU DIG IN WISCONSIN

CALL DIGGERS HOTLINE
1-800-242-8511
TOLL FREE

WIS STATUTE 182.0175(1974) REQUIRES MIN. 3 WORK DAYS NOTICE BEFORE YOU EXCAVATE

MILW. AREA 259-1181

THE UNDERGROUND UTILITY INFORMATION SHOWN ON THIS MAP IS BASED ON FIELD MARKINGS AND INFORMATION FURNISHED BY UTILITY COMPANIES AND THE LOCAL MUNICIPALITY. WHILE THIS INFORMATION IS BELIEVED TO BE RELIABLE, ITS ACCURACY AND COMPLETENESS CANNOT BE GUARANTEED.

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Phone: 414-643-4200
Fax: 414-643-4210

N

GRAPHIC SCALE
0 100 200

IMMANUEL LUTHERAN RESIDENTIAL
CRYSTAL LAKE, IL
60014

CONCEPTUAL LANDSCAPE PLAN

PRELIMINARY NOT FOR CONSTRUCTION

ISSUANCE	DATE

NO. REVISION	DATE

PROJECT NO:	22360
DESIGN DATE:	----
PLOT DATE:	2024.01.29
DRAWN BY:	JTR
CHECKED BY:	CTC
APPROVED BY:	----

SHEET NO:
L100

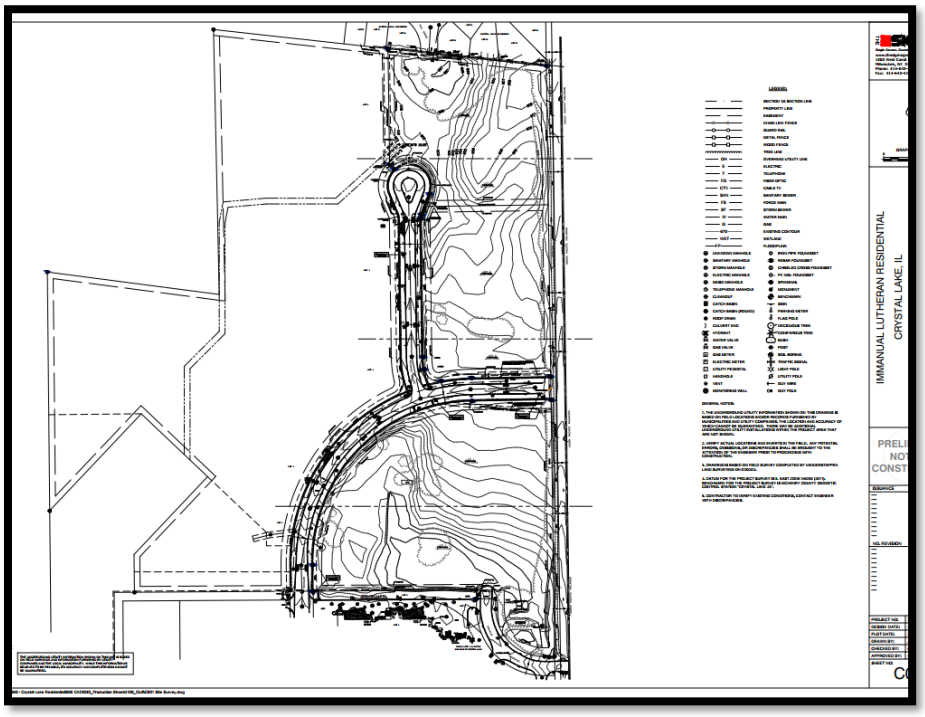
HJOHN
L100
22360

t:\Three Leaf Development\22360 - Crystal Lake Residential\060 CAD\030_Production Sheets\400_Landscape\L100 Overall Landscape Plan.dwg

PRELIMINARY WETLAND DETERMINATION

Location:

24.747 acre site – Immanuel Lutheran Residential
Crystal Lake, McHenry County, Illinois



March 5, 2024

A3E®
ENVIRONMENTAL CONSULTANTS

PREPARED FOR:

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A3E®
ENVIRONMENTAL CONSULTANTS

QUALIFICATION OF STAFF

David Koldoff, a Project Manager for A3 Environmental, LLC, provided project management and field assessments. He has 29 years of experience in environmental consulting, encompassing field work and office work for construction, transportation, and landscape projects for public and private entities. He is a certified arborist, certified wetland specialist (CWS), and a Certified Professional in Erosion and Sediment Control (CPESC). He completed wetland delineation training in 1995.

Colleen L. Stull, a Project Manager for A3 Environmental, LLC, provided project management and desktop site evaluations. She has 8 years of experience in environmental consulting, encompassing field work and office work for a wide variety of projects for local and state governments as well as private industries. Her experience includes project management, reporting, soil and groundwater sample collection, data management, and site remediation oversight. She completed the Wetland Training Institute's Basic Wetland Delineation course in 2021.

A3E notes that final authority regarding regulatory jurisdiction rests with the US Army Corps of Engineers (USACE) and the City of Crystal Lake, Illinois that a determination or delineation is not final until so designated. Notification of a final Jurisdictional Determination should be received from the USACE prior to construction on the property. If construction is planned for areas within a wetland, it may require the filing of a joint permit to the USACE, Illinois Environmental Protection Agency, and Illinois Department of Natural Resources. The City of Crystal Lake requires a development plan to be submitted demonstrating compliance with wetland and buffer standards established under City Ordinance.

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APPENDICES

Appendix A: Photo Exhibit

INTRODUCTION

February 28, 2024, A3 Environmental Consultants, LLC (A3E) conducted an aquatic resource determination for a 24.747-acre parcel of land located in Sections 5, Township 43 North, Range 8 East, in Crystal Lake, McHenry County, Illinois. The location of the site is provided in **Figure 1**.

At the time of investigation, land use at the site was undeveloped and contained an area of abandoned railroad (southeast corner near Walkup Ave), scattered patches of woodland, and mowed grasses.

The purpose of the preliminary wetland determination was to identify the extent of wetlands within the study area. The information will be used to facilitate project design.

The regulatory authority if the U.S. Army Corps of Engineers (USACE) covers Waters of the United States (WOTUS) in accordance with Section 404 of the Clean Water Act. Generally, the USACE reviews delineations to determine whether wetlands are jurisdictional (i.e., WOTUS). On December 30, 2022, the U.S. Environmental Protection Agency and Department of the Army ("the agencies") announced the final "Revised Definition of 'Waters of the United States'" rule. The rule took effect on March 20, 2023. Based on a preliminary federal injunction in April 2023, the Revised Definition was revoked and the pre-2015 regulatory regime was re-instated for 26 states. In Illinois, the 2023 Revised Definition of WOTUS is in effect as of the date of this report.

Based on the May 25, 2023 ruling of Sackett v. EPA (2023), the Clean Waters Act's use of "waters" encompasses only relatively permanent, standing, or continuously flowing bodies, ordinarily called streams, oceans, rivers, and lakes. Wetlands qualify as WOTUS only if "indistinguishable from waters of the United States, having a continuous surface connection to bodies that are waters of the United States in their own right, with no clear division between waters and wetlands.

The City of Crystal Lake regulates wetlands and requires setback buffers for certain wetlands in accordance with the Crystal Lake Code of Ordinances.

This report summarizes the process of our investigation and submits our findings. No wetland boundaries were marked on the site. This report identifies what A3E believes to be the maximum extent of wetland limits as observed during post growing season conditions. Further investigation during the growing season (May 15 to October 1) may be needed to determine regulatory limits and floristic values of wetland.

METHODS

A3E conducted the preliminary wetland evaluation on February 28, 2024 using the technical guidelines as described in the *Army Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region* (U.S. Army Corps of Engineers, 2012). This process included desktop analysis and a field investigation.

The off-site review of the site included an analysis of various maps and aerial photography, and a review of wetness signatures on aerial photography.

RESULTS

DESKTOP ANALYSIS

As part of the desktop analysis, and in preparation for the field assessment, A3E studied the site features to determine the potential presence of wetland. Historical aerial imagery was reviewed to identify wetness patterns, drainage patterns, and topographical features. The USFWS National Wetland Inventory map and NRCS Wetland map were reviewed for mapped wetlands; soils maps were reviewed to determine if hydric soils are mapped on the site; and, flood hazard areas maps were reviewed to determine how flood waters contribute to wetland hydrology.

The National Wetland Inventory map, shown in **Figure 2**, shows no wetland in the study area or immediately adjacent to the site.

The McHenry County Soil Survey, as provided by the Natural Resources Conservation Service's Web Soil Survey, shown in **Figure 3,** identifies five soil types present, none of which are hydric soil:

Soil Map Unit Name	Map Unit Symbol	Hydric Soil	Coverage of Project Area (%)
Troxel silt loam, 0-2% slopes	197A	No	1.9%
Warsaw loam, 0 to 2% slopes	290A	No	60.6%
Warsaw loam 2-4% slopes	290B	No	12.5%
Lorenzo loam, 2 to 4 percent slopes	318B	No	11.2
Lorenzo loam, 4 to 6% slopes	318C2	No	13.8%

*No natural inclusions of hydric soil were found to occur on the property; however, hydric soils appear to have formed under artificial conditions including, or as a result of stormwater flow being concentrated in a topographical depressional area near the northwest corner of the site.

WETLAND DESCRIPTIONS

A3E visited the site in February 2024, when plant identification can be difficult to impossible. This is particularly true for herbaceous plants growing in woodlands consisting of maple trees. Below, A3E describes one area that could potentially be deemed wetlands. The site is a woodland dominated by maple trees but lacking identifiable understory vegetation. As such, a growing season assessment would be needed to determine the limits of hydrophytic plants, floristic quality, and wetland limits.

Figure 4 identifies A3E's approximated location of Potential Wetland A.

Potential Wetland A (0.23 acres) (42.234279 Lat; -88.317885 Long.)

Potential Wetland A was located at the northwest corner of the study area and within the mapped soil type 290A and 318C2 (non-hydric soils). The soils were determined to be hydric and resembling Dark Surface soil classification (S7) along with 8-10% redox features.

The tree stratum was dominated by maple trees *(Acer negundo and Acer saccharinum)* which met the dominance test for hydrophytic vegetation. However, as described above, the understory vegetation (herbaceous layer) could not be inventoried, and therefore insufficient data was available to determine wetland limits.

Hydrological conditions also suggested the presence of a wetland including the identification of saturated soils (A3); sediment deposits (B2); and drift deposits (B3).

A3E evaluated the different indicators and non-indicators and when evaluated with the site's topography, estimated an area 100 feet long by 100 feet wide (or 10,000 square feet) to be potential wetland (**Figure 4)**.

UPLAND DESCRIPTIONS

The NRCS Wetland Inventory map (**Figure 6)**, identifies a wetland near Teckler Blvd at the southern end of the site. This area was investigated and found to consist of dry soils and effectively drained by a stormwater inlet structure. No indicators of wetland were found at the NRCS-mapped wetland location or in the vicinity.

Five (5) areas consisted of tree and shrub groups. All were investigated and found to contain a dominance of upland plants and upland-type soils. These areas also contained heavy refuse, concrete garbage, and rock piles, which is believed to be the reason they were not mowed as the rest of the site. Large active animal burrows were also observed in those locations, further suggesting these areas were dry.

CONCLUSION

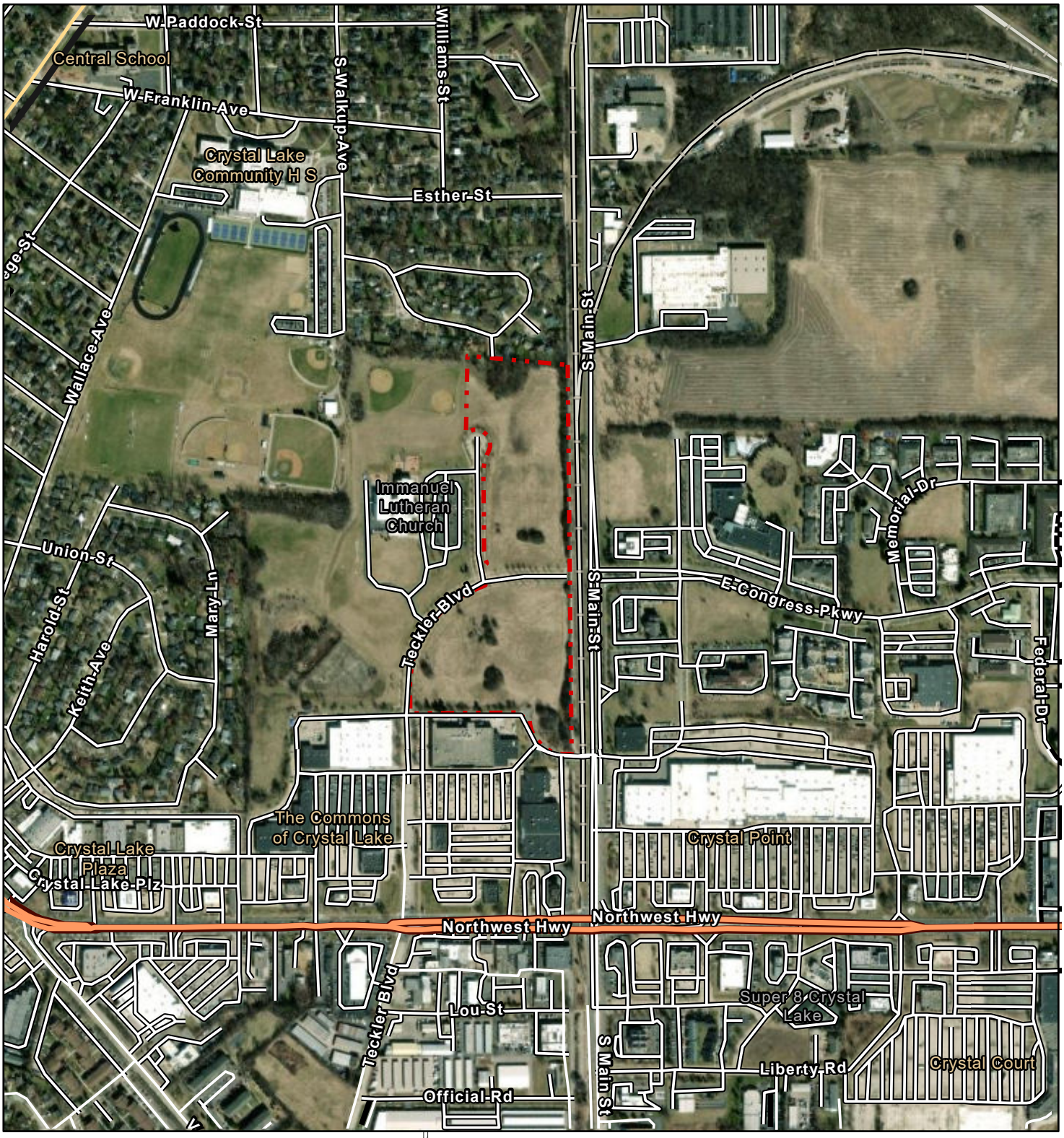
A3E identified one location that may qualify as an isolated wetland but due to winter conditions insufficient vegetation data is available determine wetland limits. The wetland is believed to be confined to a topographical depression and be 0.23 acres in size (or less).

Wetland Summary

Site	Conditions	Approximate size	Anticipated Jurisdictional Status
Potential Wetland A 42.234279 Lat; -88.317885 Long.	Wooded; stormwater drainage area, occasional flow from the north via culvert	0.23 acres	Isolated – Non-Jurisdictional (USACE) Regulated under local Ordinance - City of Crystal Lake

A3E DELINEATED WETLAND BOUNDARIES

No wetland boundaries were delineated at this time due to vegetation dormancy and difficulties identifying herbaceous ground cover vegetation as described above. The field investigation was on February 28, 2024 and was performed to identify the presence of hydric soils, hydrophytic plant species, and wetland hydrology conditions. A follow-up investigation during the growing season would be needed to perform a delineation of the wetland boundaries.



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0 0.07 0.15 0.3 mi

0 0.1 0.2 0.4 km

Legend

Site Boundary

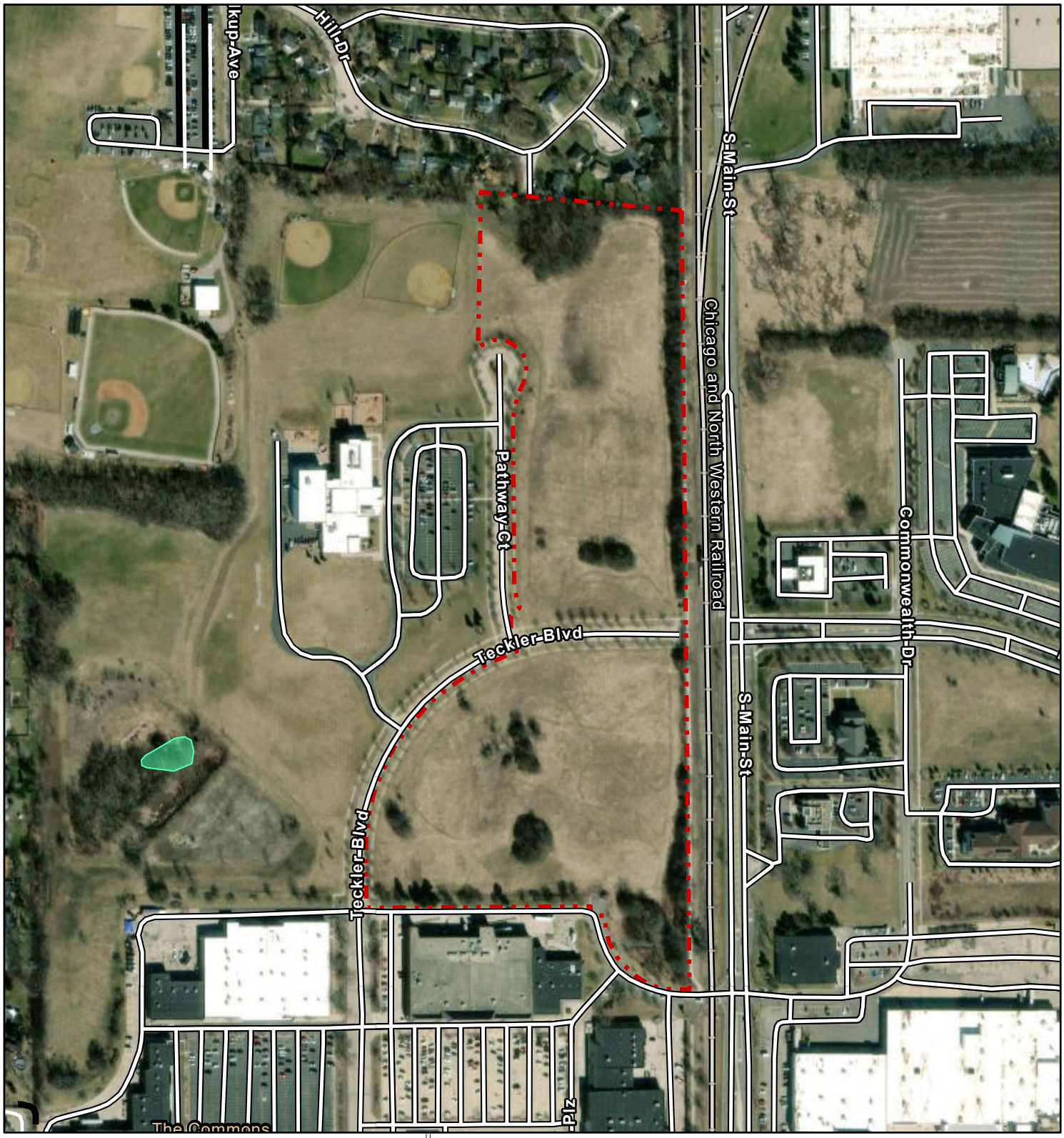
Figure 1

Immanuel Lutheran Residential Site
Crystal Lake, IL

Project Location Map

Project No.	2024.0190
Date	3.1.2024
Drawn By	C. Stull
Scale	1:12,113

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0 0.04 0.07 0.15 mi

0 0.05 0.1 0.2 km

Legend

Site Boundary

Freshwater Pond

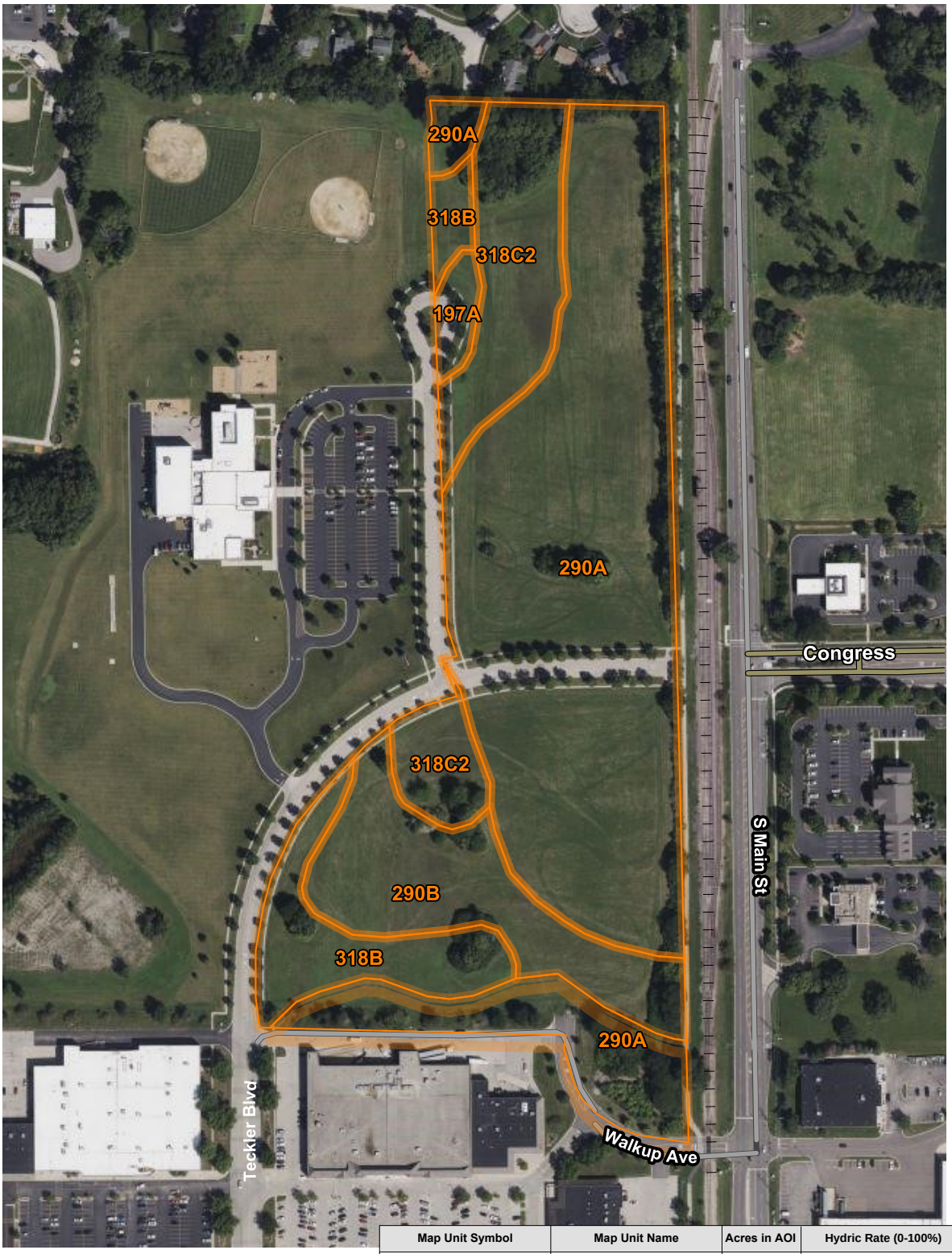
Figure 2

Immanuel Lutheran Residential Site
Crystal Lake, IL

National Wetland Inventory Map

Project No.	2024.0190
Date	3.1.2024
Drawn By	C. Stull
Scale	1:6,056

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Map Unit Symbol	Map Unit Name	Acres in AOI	Hydric Rate (0-100%)	Percent of AOI
197A	Troxel silt loam, 0 to 2 percent slopes	0.4	15	1.6%
290A	Warsaw loam, 0 to 2 percent slopes	15.6	5	61.5%
290B	Warsaw loam, 2 to 4 percent slopes	3.5	5	13.7%
318B	Lorenzo loam, 2 to 4 percent slopes	2.4	0	9.3%
318C2	Lorenzo loam, 4 to 6 percent slopes, eroded	3.5	0	13.9%

Credit:
Web Soil Survey
National Cooperative Soil Survey

0 150 300 600 900 Feet

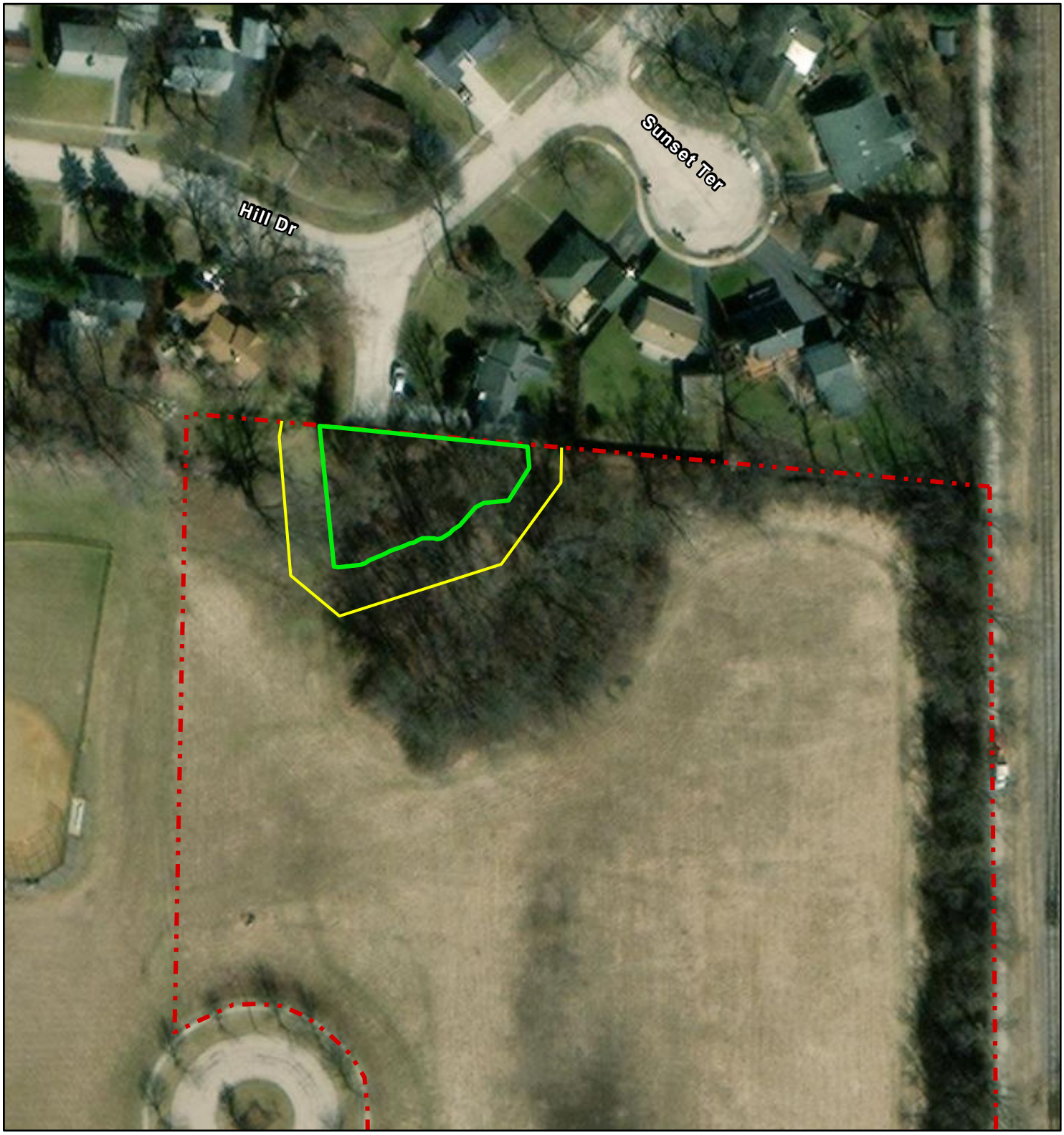
Figure 3

Immanuel Lutheran Residential Site
Crystal Lake, IL

Natural Resources Conservation Services (NRCS) Soils Map

Project No.	2024.0190
Date	3.1.2024
Drawn By	C. Stull
Scale	1:6,056

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0 0.01 0.01 0.03 mi

0 0.01 0.03 0.06 km

Legend

- Site Boundary
- Buffer Zone
- Estimated Wetland Boundary

Figure 4

Immanuel Lutheran Residential Site
Crystal Lake, IL

Wetland Delineation Aerial (Preliminary)

Project No.	2024.0190
Date	3.1.2024
Drawn By	C. Stull
Scale	1:1.514

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CONTOUR INTERVAL 10 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988
This map was produced to conform with the
National Geospatial Program US Topo Product Standard.

1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000
FEET

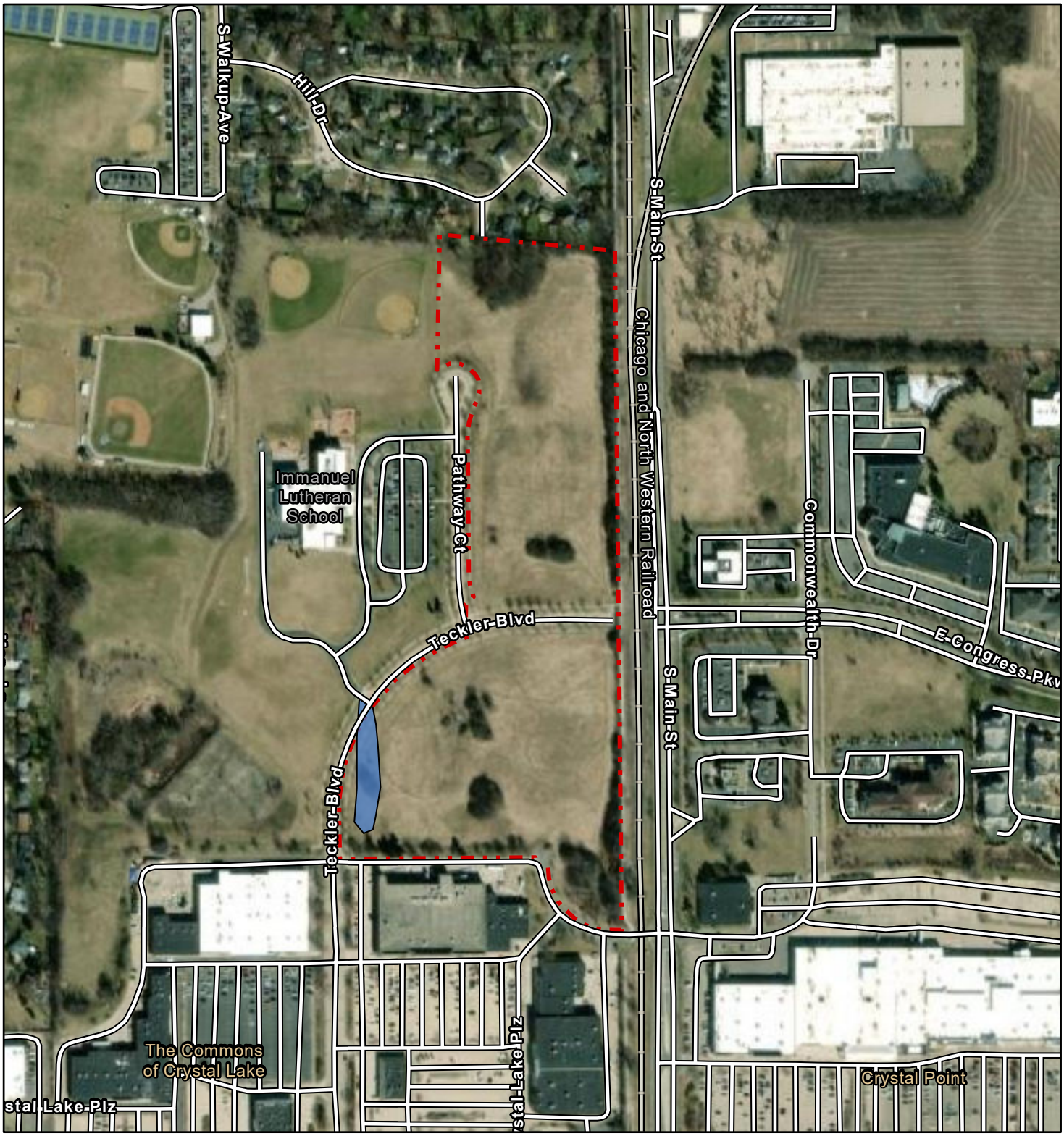
Figure 5

Immanuel Lutheran Residential Site
Crystal Lake, IL

USGS Quadrangle Map
Crystal Lake, IL (2021)

Project No.	2024.0190
Date	3.1.2024
Drawn By	C. Stull
Scale	1:24,000

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0 0.04 0.09 0.17 mi

0 0.05 0.1 0.2 km

Legend

Site Boundary

NRCS Wetland

Figure 6

Immanuel Lutheran Residential Site
Crystal Lake, IL

NRCS Wetland Inventory Map

Project No.	2024.0190
Date	3.1.2024
Drawn By	C. Stull
Scale	1:6,943

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0 0.04 0.09 0.17 mi

0 0.05 0.1 0.2 km

Legend

Site Boundary

Figure 7

Immanuel Lutheran Residential Site
Crystal Lake, IL

FEMA National Flood Hazard Map

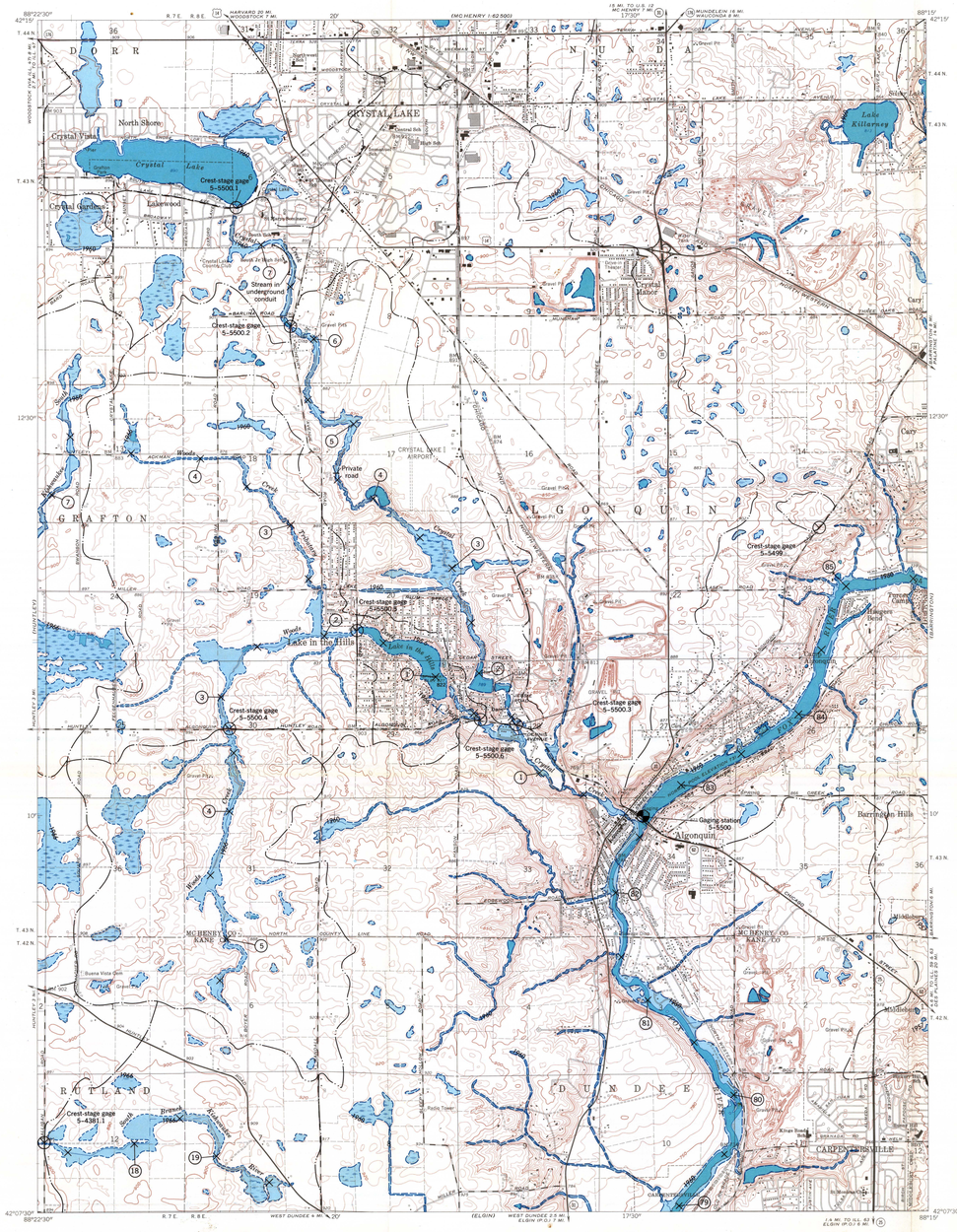
Project No.	2024.0190
Date	3.1.2024
Drawn By	C. Stull
Scale	1:6,943

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DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

PREPARED IN COOPERATION WITH
THE NORTHEASTERN ILLINOIS METROPOLITAN
AREA PLANNING COMMISSION

HYDROLOGIC INVESTIGATIONS
ATLAS HA-253



FLOODS IN CRYSTAL LAKE QUADRANGLE NORTHEASTERN ILLINOIS

This report presents hydrologic data that can be used to evaluate the extent, depth, and frequency of flooding that affect the economic development of flood plains in the Crystal Lake quadrangle, northeastern Illinois. It will aid individuals, government agencies, and others responsible for solving existing flood problems and for formulating effective flood-plain regulations that will minimize the creation of new flood problems. The report will also be useful for preparing building and zoning regulations, locating waste disposal facilities, developing recreational areas, and managing surface water in relation to the ground-water resources.

The areas inundated by floods along streams in the Crystal Lake quadrangle are delineated on a topographic map. The quadrangle location is shown in figure 1.

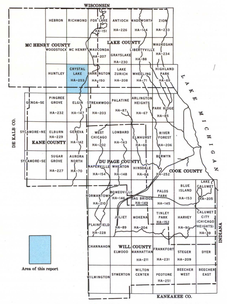


FIGURE 1.—*Index map of northeastern Illinois showing location of quadrangles included in flood-hazard mapping program.*

Dates and areas where flooding has occurred are shown in the following list:

Date of flood	Area flooded
July 1957	Small depressions in the southeast area of the map.
April 1960	Fox River, Crystal Creek, Woods Creek downstream from mile 0.82, Kishwaukee Creek South, and several unnamed tributaries to these streams.
February 1966	Woods Creek upstream from mile 0.82, Woods Creek tributaries, and South Branch Kishwaukee River.

The flood of April 1960 on Crystal Creek was reported by local residents to be the highest since 1938. The July 1938 flood was reported to have been about 1 foot higher in the vicinity of Algonquin.

Greater floods than those shown on the map are possible. The flood boundaries shown provide a record of historic fact that reflects channel conditions existing when the floods occurred. Changes in channel conditions, waterway, openings at highways and railroads, or changes in runoff characteristics of the streams caused by increased urbanization that may have taken place subsequent to the floods shown on the map could affect the flood height of future floods of comparable discharge, Protective works built after the floods shown may reduce the frequency of flooding in the area but will not necessarily eliminate all future flooding. The inundation pattern of future floods may be affected by new highways and bridges, relocation and improvement of stream channels, and other cultural changes.

The general procedure used in defining flood boundaries was to construct flood profiles from elevations of floodmarks identified in the field and from data available from other agencies, The extent of flooding delineated on the topographic map was derived from the profiles by interpolation between contours (lines of equal ground elevations) and by plotting overflow limits identified during field investigations and surveys, The portrayal of flood boundaries is consistent with the scale of the map (1 inch = 2,000 feet; contour interval, 10 feet).

There are depressions and lowland areas in the Crystal Lake quadrangle where surface water accumulates because of inadequate drainage into the streams. Frequency and depth of flooding in these areas are unrelated to the water-surface elevation along the streams, Some areas are flooded only briefly after periods of heavy rainfall or snowmelt, whereas others remain inundated continuously, depending largely upon the rates of evaporation and seepage into the ground, Flood boundaries are shown for all such areas that were detected in this investigation.

Cooperation and acknowledgment.—The preparation of this report is a part of an extensive flood-mapping program financed through cooperative agreements between the Northeastern Illinois Metropolitan Area Planning Commission and the U.S. Geological Survey, Under previous agreements, flood maps were prepared for forty-three 7½-minute quadrangles, Under the present agreement, the flood-mapping program was expanded to include all the 7½-minute quadrangles shown in figure 1, The program includes parts of Cook and McHenry Counties, nearly all of Kane and Will Counties, and all of Du Page and Lake Counties, The six counties cooperate in the program financially through separate agreements with the Planning Commission, Financial support for the preparation of this report was provided by McHenry County through the Northeastern Illinois Metropolitan Area Planning Commission,

The cooperative program is administered on behalf of the Planning Commission by Matthew L. Rockwell, Executive Director, and is directly coordinated by John R. Sheaffer, Chief Planner.

This report was prepared by the U.S, Geological Survey under the administrative direction of William D, Mitchell, district chief, and under the immediate supervision of Allen W. Noehre, engineer-in-charge of the project.

Acknowledgment is made to the State of Illinois, Department of Public Works and Buildings, Division of Waterways, for supplying some of the data on which this report is based,

Additional data were obtained from public officials in the area and from field investigations.

Flood height.—The height of a flood at a gaging station usually is stated in terms of gage height or stage, which is the elevation of the water surface above a selected datum plane, Elevations shown in this report are in feet above mean sea level, Gage heights for gaging stations in the Crystal Lake quadrangle can be converted to elevations above mean sea level by adding the gage height to the appropriate datum of gage listed in the following table, Size of the drainage basin for each station also is shown in the table, The subbasin divides from which the areas were determined are shown on the flood map.

Gaging station	Station number	Type of gage[1]	Datum of gage above mean sea level (feet)	Drainage area (square miles)
Fox River tributary near Cary (Cary-Algonquin Road)	5-5499	C[2]	858.14	0.07
Fox River at Algonquin (Chicago Street-State Highway 62)	5-5500	R	729.48	1,364
Crystal Creek: At Crystal Lake (Lake Avenue)	5-5500.1	C	889.82	5.87
Near Crystal Lake (McHenry Avenue)	5-5500.2	C	878.38	8.49
At Lake in the Hills (Huntley-Algonquin Road)	5-5500.3	C	764.65	12.1
Woods Creek: Near Lake in the Hills (Huntley-Algonquin Road)	5-5500.4	C	844.45	3.65
At Lake in the Hills (Crystal Lake Road)	5-5500.5	C	822.32	8.08
Near Algonquin (Huntley-Algonquin Road)	5-5500.6	C	777.84	8.72
South Branch Kishwaukee River near Gilberts (Galligan Road)	5-4381.1	C	882.07	2.74

[1]Crest-stage gage; R Water-stage recorder.
[2]Water-stage recorder installed August 1964 to obtain continuous record for several flood events.

Gage height and year of occurrence of each annual flood (highest peak stage in a calendar year) above 733-foot elevation at the gaging station, Fox River at Algonquin, during the period 1916-65 are shown in figure 2, Removal of an old dam and construction of a new one at approximately the same location in 1946 changed the stage-discharge relation for this site, Stages for flows of specific discharges were lower after the new dam was constructed.

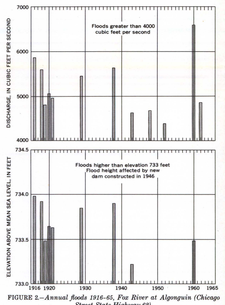


FIGURE 2.—*Annual floods 1916-65, Fox River at Algonquin (Chicago Street-State Highway 62).*

Gage height and year of occurrence of each annual flood above 773-foot elevation at the gaging station, Boone Creek near McHenry during the period 1949-65 are shown in figure 3, This gaging station is located about 5 miles north of the Crystal Lake quadrangle,

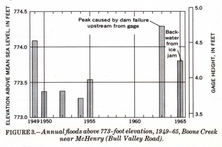


FIGURE 3.—*Annual floods above 773-foot elevation, 1949-65, Boone Creek near McHenry (Bull Valley Road).*

These histograms illustrate the irregular occurrence of floods at two gaging stations with drainage areas differing in size by a factor of almost 100 (drainage area for Boone Creek near McHenry, 15,3 square miles; for Fox River at Algonquin, 1,364 square miles) and typifies the probable relative magnitude of floods on streams in the Crystal Lake quadrangle,

Flood discharge.—The rate of discharge of a stream is the volume of flow that passes a particular location in a given period of time, Discharge rates usually are expressed in units of cubic feet per second (cfs), Peak discharge, the maximum discharge attained by a flood, generally occurs at the time of the maximum height (stage) of the flood, but if a stream is affected by variable backwater, the time of the peak discharge may not coincide with that of the maximum stage, For example, backwater from debris or an ice jam may cause a high stage during a period of relatively low discharge,

Figure 2 includes a graph of the annual maximum discharges in excess of 4,000 cfs for the period of record at the Algonquin gaging station, This graph portrays the relative magnitudes of the flood discharges which are independent of changes resulting from the dam constructed in 1946,

Flood frequency.—Frequencies of floods at the Geological Survey gaging stations, Fox River at Algonquin and Boone Creek near McHenry, were derived from streamflow records at these stations combined with records of nearby stations and with the regional flood-frequency relation for streams in northern Illinois (Mitchell, 1954), The general relations between frequency and discharge at the two gaging stations are shown in figures 4 and 5, and the relations between frequency and stage are shown in figures 6 and 7, The relation between stage and frequency is dependent on the relation of stage to discharge which is affected by changes in physical conditions of stream channels and constrictions.

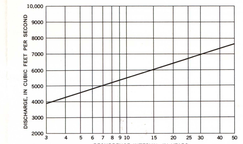


FIGURE 4.—*Frequency of flood discharges on Fox River at Algonquin (Chicago Street-State Highway 62).*

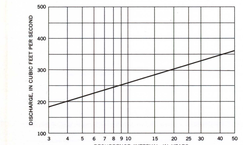


FIGURE 5.—*Frequency of flood discharges on Boone Creek near McHenry (Bull Valley Road).*

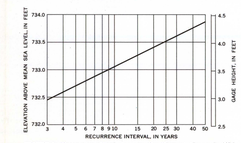


FIGURE 6.—*Frequency of flood stages on Fox River at Algonquin (Chicago Street-State Highway 62).*

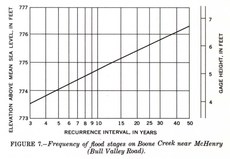


FIGURE 7.—*Frequency of flood stages on Boone Creek near McHenry (Bull Valley Road).*

The frequency curves shown in figures 6 and 7 are based on channel conditions existing in 1966, Longer records and future changes in channel conditions may define somewhat different flood-frequency curves, Extrapolation of the curves beyond the limits shown is not recommended,

Recurrence intervals.—As applied to flood events, recurrence interval is the average interval of time within which a given flood will be equaled or exceeded once, Frequencies of floods can be stated in terms of their probabilities of occurrence (virtually reciprocals of their recurrence intervals for floods with recurrence intervals greater than 10 years), For example, a flood with a 25-year recurrence interval would have a 4-percent chance of being equaled or exceeded in any given year or a flood with a 50-year recurrence interval would have a 2-percent chance of being equaled or exceeded in any given year, The general relation between recurrence interval and flood height at gaging stations on Fox River at Algonquin (fig, 6) and Boone Creek near McHenry (fig, 7) is tabulated below:

Recurrence interval (years)	Elevation above mean sea level (feet)	
	Fox River at Algonquin	Boone Creek near McHenry
50	732.9	776.3
30	733.3	775.8
20	733.4	775.4
10	733.1	774.7
5	732.7	774.0
3	732.5	773.5

It is emphasized that recurrence intervals are average figures—the average number of years between occurrences of floods that equal or exceed a given magnitude, The fact that a major flood is experienced in one year does not reduce the probability of that flood being exceeded in the next year or even in the next week,

Flood profiles.—Profiles of the water surface of the floods of April 1960, March 1962, and February 1966 are shown in figures 8-12, Where floodmarks could not be identified, the profiles were located on the basis of flood crests determined from photographs and from reports by local residents and on elevations of streambeds and lower flood stages, River miles used for the profiles correspond to those marked along the streams on the flood map,

The abrupt changes in the profiles, shown at some road crossings, indicate the difference in water-surface elevations at the upstream and downstream sides of bridges that produce channel constrictions, The drop in water surface through bridge openings during future floods may be different from that shown on the profiles, An increase in channel capacity through a bridge opening would reduce the flood height on the upstream side, An accumulation of debris at a bridge would reduce the channel capacity and tend to increase the upstream flood height, Channel changes through bridge openings may also change the overflow pattern of future floods,

Flood depths.—Depth of flooding at any point can be estimated by subtracting the ground elevation from the water-surface elevation at the same point, indicated by the profiles in figures 8-12, The approximate ground elevation can be determined from contours on the map, although more accurate elevations can be obtained by leveling from nearby bench marks,

Additional data.—Other information pertaining to floods in the Crystal Lake quadrangle can be obtained at the office of the U.S, Geological Survey, Oak Park, Ill., and from the following published reports:

Daniels, W. S., and Hale, M. D., 1958, Floods of October 1954 in the Chicago area, Illinois and Indiana: U.S, Geol, Survey Water-Supply Paper 1370-B, p, 107-200.

Illinois Department of Public Works and Buildings, Division of Waterways, 1962, Survey report for development of Fox River for recreational navigation, 204 p,

Mitchell, W, D., 1954, Floods in Illinois, magnitude and frequency: Illinois Dept, Public Works and Bldgs., Div, of Waterways, 386 p,

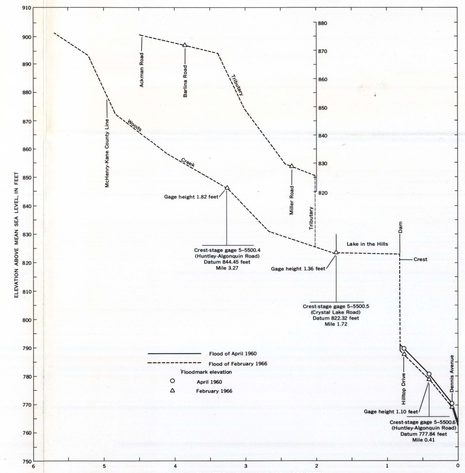


FIGURE 10.—*Profiles of floods on Woods Creek and tributary.*

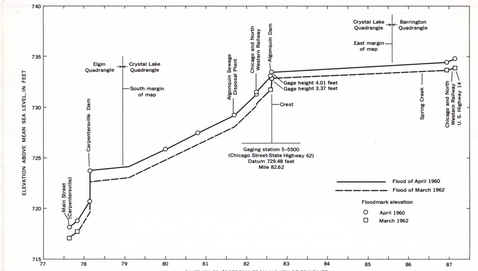


FIGURE 8.—*Profiles of floods on Fox River.*

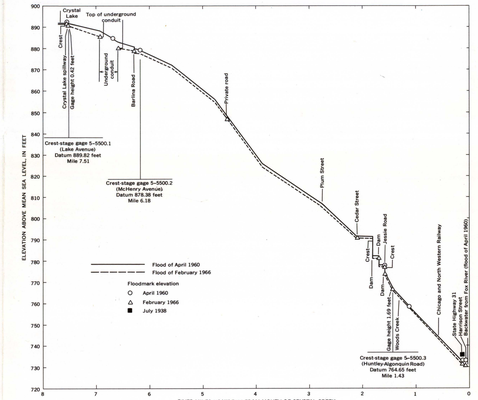


FIGURE 9.—*Profiles of floods on Crystal Creek.*

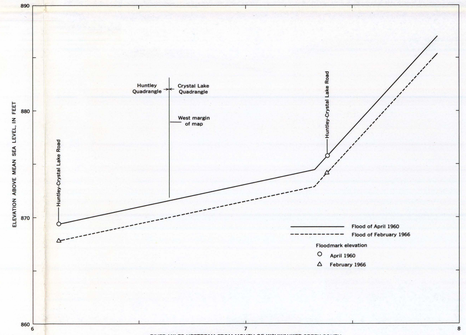


FIGURE 11.—*Profiles of floods on Kishwaukee Creek South.*

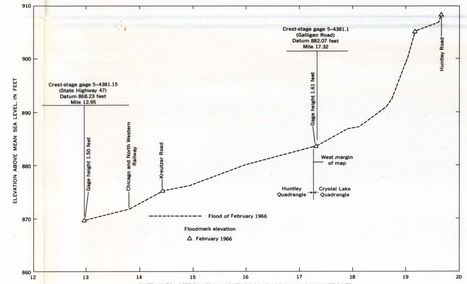


FIGURE 12.—*Profile of flood on South Branch Kishwaukee River.*

INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D.C.—1967—W67147

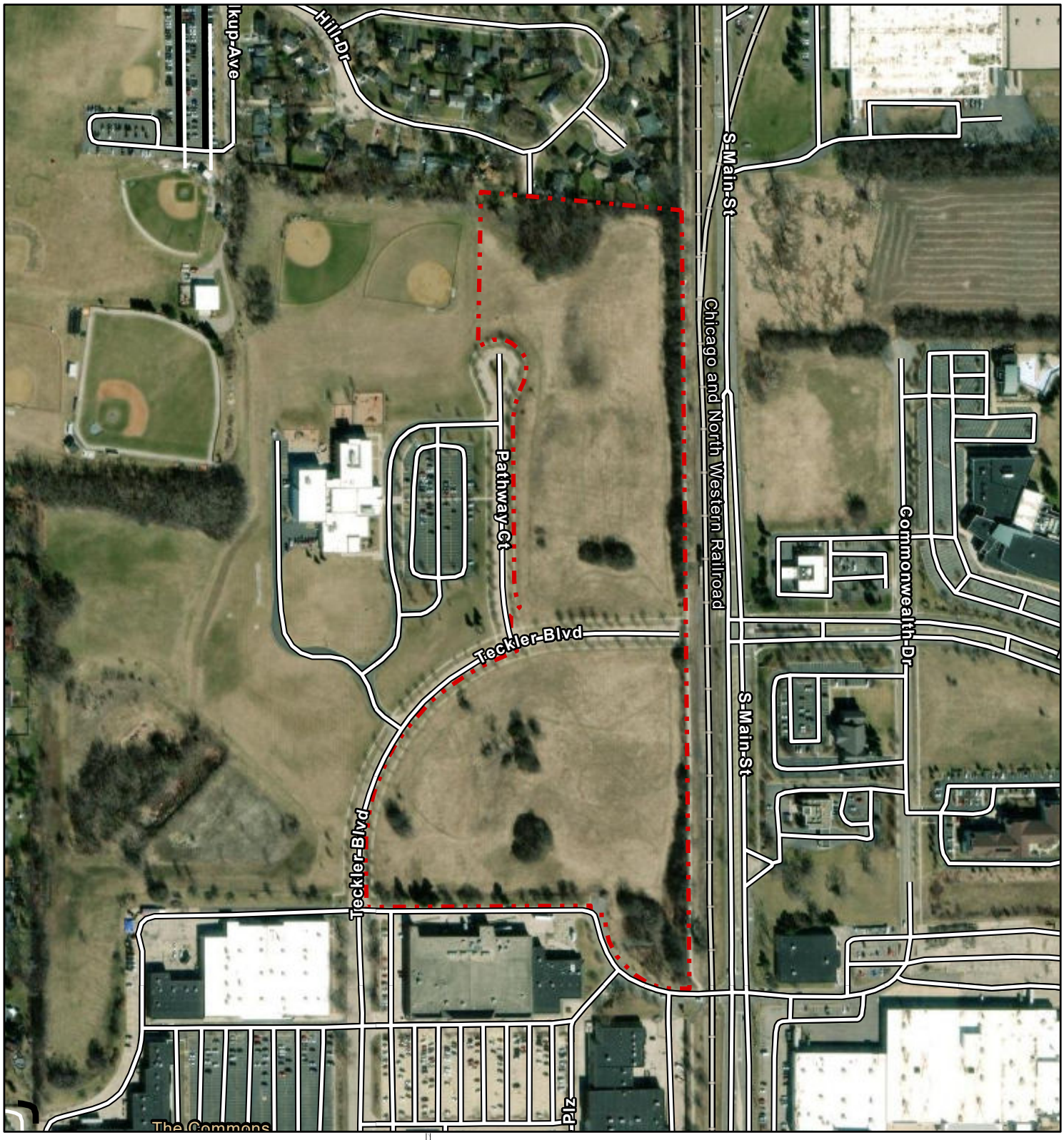
Figure 8

Immanuel Lutheran Residential Site
Crystal Lake, IL

FLOODS IN CRYSTAL LAKE QUADRANGLE, NORTHEASTERN ILLINOIS

By
V. Jeff May and Roman T. Mycyk
1967

For sale by U.S. Geological Survey, price 75 cents



Esri Community Maps Contributors, County of McHenry, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/ NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Maxar

0 0.04 0.07 0.15 mi

0 0.05 0.1 0.2 km

Legend

Site Boundary

**No ADID Wetlannds were identified within the vicinity of the Project Area

Figure 9

Immanuel Lutheran Residential Site
Crystal Lake, IL

Advanced Identification of Wetland (ADID) Map

Project No.	2024.0190
Date	3.1.2024
Drawn By	c. stull
Scale	1:6,056

A3E CONSULTANTS

WORKS CITED

Environmental Laboratory. *Corp of Engineers Wetland Delineation Manual. 1987.* Vicksburg, MS: U.S. Army Corps of Engineers Waterways Experiment Station, 1987. Print 100 pp. + appendices.

US Army Corps of Engineers. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region* (Version 2.0). Vicksburg, MS: US Army Corps of Engineers, Engineer Research and Development Center, Environmental Laboratory, 2012.

USDA Natural Resource Conservation Service (NRCS). "Custom Soil Resource Report for McHenry County, Illinois" *Web Soil Survey*. U.S. Department of Agriculture. Websoilsurvey.nrcs.usda.gov/app.homepage.htm

Google, Inc. Google Earth Aerial Imagery. (All available years)

Appendix A

Photo Appendix

PHOTO LOG		
	Date	2/28/2024
	Description	Project area – South side; Facing west Large tree and shrub grouping area.
	Comments	No wetland.
	Date	2/28/2024
	Description	NRCS-mapped wetland area; Southwest corner. Facing south.
	Comments	A stormwater inlet structure is located in the center of the grassy area left of the sidewalk, drains the area. No wetland indicators found.
	Date	2/28/2024
	Description	Center of property; Facing west.
	Comments	Area is topographically higher than surrounding land (no possibility for ponding water).

PHOTO LOG		
	Date	2/28/2024
	Description	Soil sample point in woodland drainage site, northwest corner of site.
	Comments	Hydric soil profile.
	Date	2/28/2024
	Description	Soil sample area and surrounding low area; Facing north.
	Comments	Culvert discharge area (culvert located top-center of photo); sample point near center of photo.
	Date	2/28/2024
	Description	Stormwater structure (1 of 2) located west side of Pathway Court; Facing southwest.
	Comments	Historic flood area. No evidence of wetland hydrology; No drainage pattern connection to Wetland A.

Appendix A
Objection Letters

Crystal Lake Mission & History

Crystal Lake Mission & History

- Our mission is to **enhance and preserve the history, natural resources and unique cultural traditions of the community,** as well as provide fiscally sound and responsive services, programs, and facilities with the highest degree of professionalism, integrity, and efficiency so that Crystal Lake continues to be a great place to live and work.
- **In 1996**, concerned citizens had to **remind the City of our core values by opposing the proposed construction on this same parcel of land.** Fortunately, **the City Council & Mayor listened and upheld the single-family R-2 zoning.**

Pathway Courts Project Proposal

- This **project contradicts Crystal Lake's mission,** and we urge the City Council to heed the concerns of its citizens in 2024 and maintain the single-family R-2 zoning.
- The proposed project **is near identical to** the proposed construction **plan that citizens spoke out against in 1996.**

Citizens' concerns

- Crystal Lake **historic neighborhood residents** attended the Planning & Zoning Commission meeting on April 3.
- Citizens **are against** a comprehensive land use plan amendment to change zoning from R-2 Single-Family Residential to R-3B PUD Multi-Family Residential along with the additional variance to accommodate a 312-unit apartment rental complex.
- The **Planning & Zoning Commission agreed with the citizens and voted 4 to 2 against** the amendment, citing concerns about the density, increasing number of rental projects and their impact on community.
- Despite points raised by Immanuel Lutheran Church highlighting potential benefits to their organization, critical considerations regarding density, safety, infrastructure, resources, and the neighborhoods' character are overlooked.

Our zoning laws were designed with a purpose

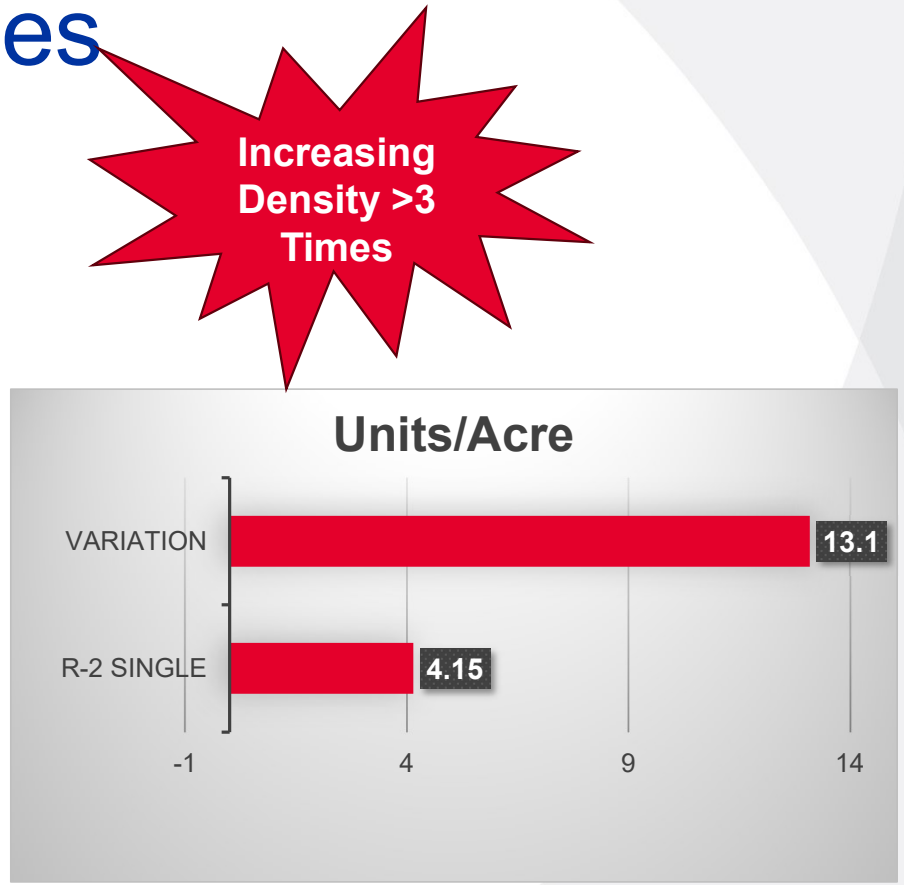
Section 1-700 District Purposes

This sections sets forth, **The purpose of the districts to guide zoning decisions in a manner that achieves the purpose of the City's Comprehensive Land Use Plan.** For each of the districts, there is a general purpose statement, a description of the character to be achieved, and the uses the district is intended to provide. This Ordinance rejects as outdated and inappropriate the concept of hierarchical and cumulative zoning and except as noted herein, and is based upon the concept that each district should be designed to accomplish a specific purpose, **to encourage a particular type of development and to protect that development from being encroached upon by incompatible types of development.**

Next, are key points for why the proposed amendments and re-zoning requests should not be approved.

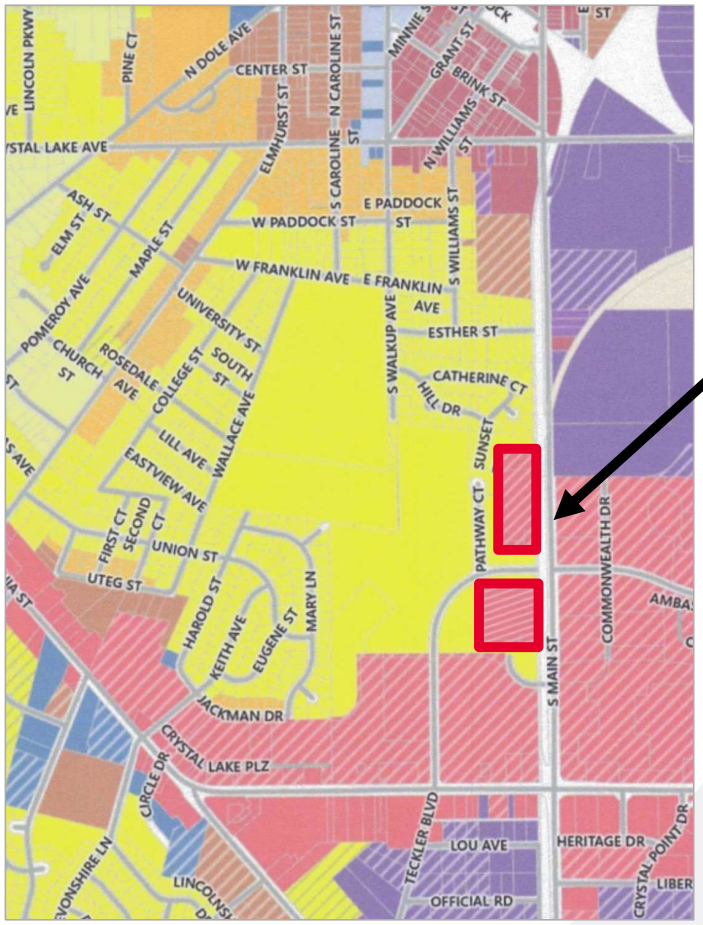
Requested zoning changes increase density >3 Times

1. Comprehensive Land Use Plan **Amendment from Urban Residential to High Density** Residential.
2. Rezoning from R-2 Single-Family Residential **(4.15 units per acre)** to R-3B PUD Multi-Family Residential. This allows **9 units per acre**.
3. Preliminary and Final Planned Unit Development with **Variation to increase the dwellings to 13.1 per acre**.



Deviates from community's surrounding context

- A zoning change from single-family residential to multi-family residential, accompanied by increased density variance, **represents a radical shift in the character** of our long-standing community.
- This zoning alteration **deviates from the established single-family neighborhood's surrounding context.**



Proposed location for 312 high-density units in an area properly zoned residential single family (denoted by yellow).

Saying it another way…

- Area is appropriately zoned single family residential**.(See R-2 zoning description Appendix A)**
- Single family homes border it to the north and to the west.
- 312 apartments and 600+ parking spaces adjacent to two established single-family neighborhoods in the heart of historic downtown is **not aligned with the Crystal Lake Mission, Zoning Purpose, or R-2 Character.**



North border neighboring single family homes.

Safety concerns for bicyclist and pedestrians

- The Pathway Court project proposes one of its two main entrances to be located at Main Street and Teckler Road, **necessitating additional 600+ vehicles crossing over the heavily utilized bicycle path.**





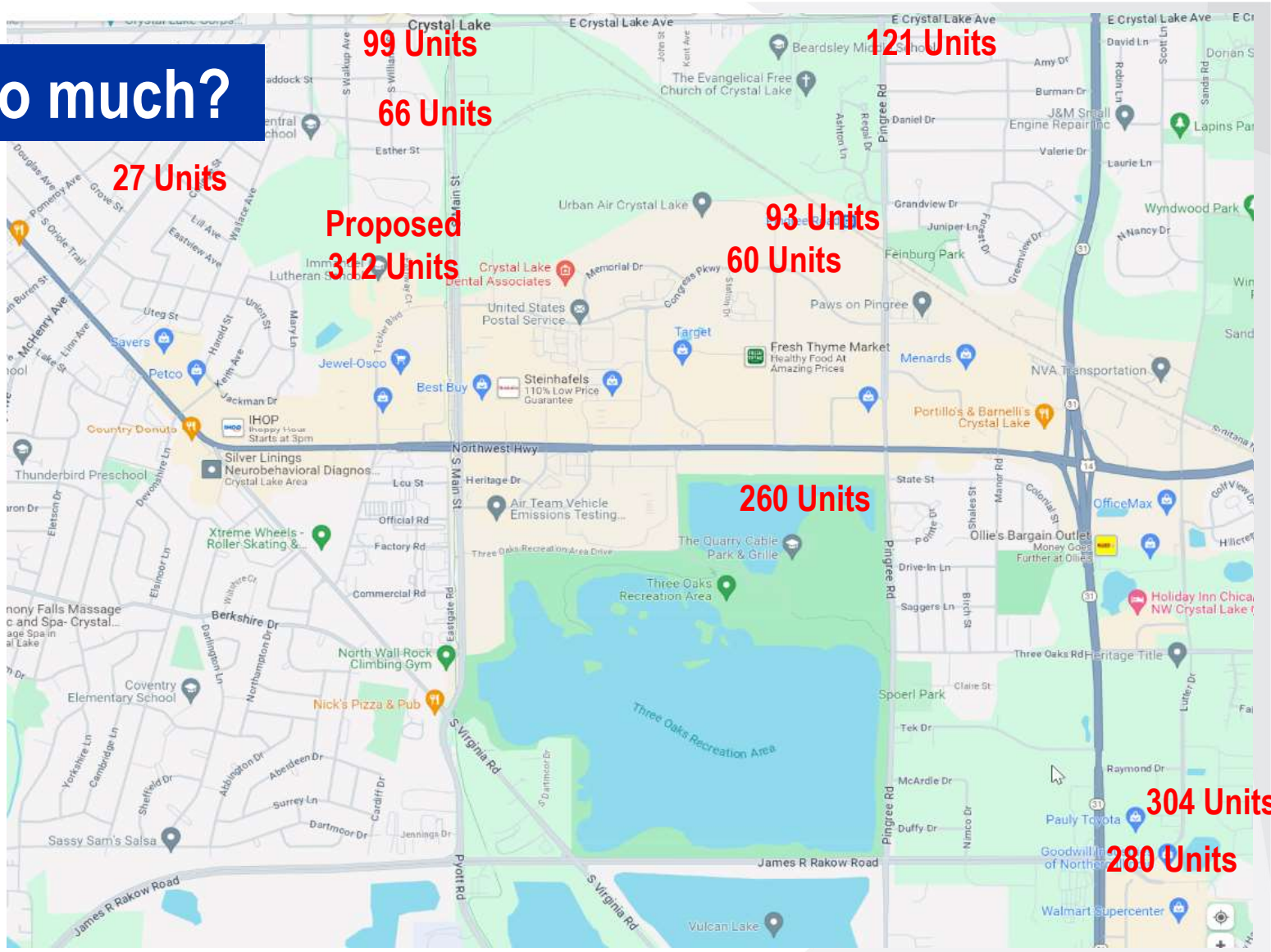
Potential impacts to the greater community

- **Police and Fire:** An expanded population necessitates staffing increases, which involve a lengthy 3-year hiring and onboarding process.
- **Water:** The strain on the current water supply and increased drainage and runoff may lead to groundwater problems in established neighborhoods that have always been above flood plain.
- **Land:** Costs of acquiring land from Union Pacific to create a road at Teckler in addition to the intersection of Pathway Court, Congress Parkway and Main Street for entrance access across the railroad spur and bike path (desired future state).
- **Schools:** The rising student population demands additional staffing and resources for schools.
- **Wildlife:** Displacement of animals and destruction of an established wildlife ecosystem.

How much is too much?

Currently, we have approximately 1300 rental units (potential 2,000+ occupants) that have been built or will be built within 3 miles of the proposed Pathway Court Apartment Project.

Have we reached a saturation of rentals in this 3-mile area?



Our longstanding motto…

Crystal Lake
A good place to live!

Or,

Crystal Lake
A good place to stay briefly?

Appendix A

R-2 Zoning - 4.15 units/acre description

A. Single-Family (E, RE, R-1, **R-2**) Districts.

1. **General:** These districts are the City's **primary single-family detached residential districts**. They permit a wide range of residential living styles and encourage a variety of housing types.
2. **Character:** These **districts allow a low to moderate density of development. They are characterized by a balance between the landscape and built environment with on-site landscaping and tree-lined streets that shelter the buildings. Open space and low impervious surface ratios characterize the built environment.**
3. **Uses:** These districts are planned for residential neighborhoods, with a range of housing types to meet all residential needs. Complementary uses such as certain civic and open uses are permitted, but are subject to restrictions set forth in this Ordinance to preserve the residential nature of these districts.

Question Detail: to all - CL PLANNING & ZONING
Jeff Greenman, Chair
Bill Gronow, Vice-Chair
Stacy Mason
Kathy Repholz
Allan Skluzacek
Scott Smith
Natasha Teetsov

Dear Planning and Zoning Member

Re: Future Rezoning

Each of your departments has a very important part in all our futures. Our history, our physical environment, our health and financial commitments are in your hands.

As a long time Crystal Lake resident I remember how life was here almost 30 years ago and I miss it.

Stop rezoning farm land into housing or commercial land use. We need farms, open fields and treed lots. I fear all the for sale signs up and previous actions by cities changing our towns.

We also don't want to lose each McHenry county town's unique look by trying to be like other towns who threw away their individual character like Palatine. We should not have a goal to look like somewhere else.

Recently Crystal Lake allowed a monster downtown housing project that is a few feet from the sidewalk and too tall. The city had the opportunity for years to develop and duplicate the look on the other side making our downtown section larger and stay in character with the existing businesses with apartments above.

We don't need more people living here.

We don't need more traffic. Our main roads are near grid lock at least 15 hours each day. Some of us wait way too long to leave our own street to access, for example, McHenry Avenue or 14.

We don't need more shopping centers. What about all the places already in existence that are vacant?

Development will not lower our taxes. We will have to pay for additional schools, sewers, water, roads, road maintenance, etc. Stop this madness.

Residents and government officials can say and should say no. Enough is enough - we like our town / county the way it is. We are happy to maintain it current level of growth and allow no more.

Thank you.

Carol Wirth
503 Linn Avenue
Crystal Lake, IL 60014

Atten: Crystal Lake city council members
From: Thomas S. and Cecilia Farr, 227 Sunset Ter., Crystal Lake

Since 1982 we have been homeowners directly North of the property that the Emanuel Lutheran Church acquired some years ago. This short letter is regarding the proposed rezoning of the property, 223-395 Pathway Crt. that our zoning commission voted against.

We strongly support the commision, our neighbors and other family members that DO NOT approve of the proposed rezoning.

We came to C.L. to work and raise our family in what we hope is still a community minded city. Having lived in our home for over 40 years, we believe we have an unique perspective on this particular property, having volunteered our time and energy to keep garbage out, keep access open between our neighbors and the bike path and treated it all with continual respect.

The entire neighborhood was happy when the Church took control of the 90+ acres and ensured that much of it might be protected from blatant urban renewal. While we understand that the Church has done so much and are entitled to profit from the vacant land, there are a number of reasons why we believe this area should not be rezoned.

We all agree that this property is special because of its close proximity to shopping, medical services, our wonderful Downtown, 3 Oaks, and its relative isolation. Bounded on the East by Main St. and the Union Pacific, the South by accessible retail, the West by the Church and to the North, by our well maintained residential area, we believe this area would be IDEAL for its current zoning! We do not agree that this property is only suited for MORE multi-unit rental housing. Townhouses and condos might be a feasible option.

When we first moved to this location there was still corn growing on most of the land. Over the years, in addition to the usual furred and feathered animals, we have enjoyed mink, Flying squirrels (I have photos), Red foxes, Indigo Buntings, Eastern Bluebirds, Red-breasted Grosbeaks, Red-headed Woodpeckers and more. The current, small pack of resident coyotes does an excellent job of controlling rodents, rabbits and groundhog populations. Unfortunately, our long returning populations of Baltimore AND Orchard Orioles are showing signs of decline and the Sandhill Cranes did not return to nest last year.

Also, as immediately affected homeowners to the North/NW we are most concerned with the proposed stormwater retention! From what we can tell, reading the limited plans that have been made available to the public, the stormwater drainage appears adequate. As long term residents we can testify to a few facts that are not evident. 1) while the soil is porous the NW "Wetlands" on the print already flood after EVERY rain; 2) after some very heavy rains, we have witnessed, up to TWO FEET of standing water that lasted for days, at least a dozen times! 3) the existing trees listed ARE NOT "mostly Maple ". They are mostly old scrub growth of Box Elder, a little Elm and Hickory, of which many are already leaning at dangerous angles. We are currently losing 1 or 2 large trees (2 ft+ dia.) per year due to shallow rooting and loose soil (again we have photos). The wild grape vines will soon likely overwhelm our abilities to control them, adding more weight and less sunlight to the already stressed environment. So PLEASE, NO MORE stormwater!

Thank you for your time, The Farrs

Mayor Haleblian and City Council Members,

I have lived in Crystal Lake for 29 years. I find it ironic that in my 29th year here, we are again deciding what will be built on 24 acres of open land east of Immanuel Lutheran Church, west of Main Street. This project is known as the "Pathway Court".

Right after I moved here, a young neighborhood activist, Aaron Shepley, rallied the neighborhood against the development proposal of this same area of open land, then 60 acres. The developer, Bo Strom, proposed single-family homes, multi-family homes, and commercial property for the site. The proposal included zoning, density, building length, and height variances. This is similar to what Three Leaf Partners, the current developer, has requested for this site. At that City Council meeting, the mayor stood up and stated, "The city has spoken", and rejected the proposal. This taste of activision prompted Aaron Shepley to run for mayor. He was elected mayor for 21 years, its longest-serving mayor. Mayor Sheply was so well respected that after his sudden, unexpected death, the Crystal Lake City Municipal building was renamed in his honor.

Immanuel Lutheran Church is partnering with Three Leaf Partners for the Pathway Court Project. During the planning and zoning commission meeting on April 3, 2024, Immanuel said this 15-building 312 rental unit project is part of their mission. The Planning and Zoning Commission rejected their proposal. On April 27, 2024, Immanuel Lutheran Church recently held a meeting at their church and invited neighbors to the north who border this property. At that meeting, Pastor Tieman said the Pathway Court project would provide the church with the most income and the city of Crystal Lake with the most tax revenue.

When looking at the Three Leaf Partners website, Home - Three Leaf Partners (threeleafdevelopment.com), under the "Who We Are" tab, and then clicking "About," scrolling down to "Our Mission," you will read what their mission is:

What we promise our investors is simple: business professionals get the opportunity to invest alongside professional athletes, and professional athletes learn how to create generational wealth that endures beyond their playing careers. Together, we fund and facilitate projects that are sustainable, multifaceted, and make a lasting impact on the community.

The Planning and Zoning Commission has rejected the Pathway Court proposal by a four to two vote. Before you vote on May 7, 2024, you should ask yourself, would Mayor Shepley approve?

Sincerely,

Larry Joswiak

41 Esther St.

Crystal Lake, IL 60014

Appendix B
Support Letters

April 29, 2024

Ms. Elizabeth Maxwell, AICP
City Planner | Community Development
City of Crystal Lake
100 W. Woodstock Street
Crystal Lake, IL 60014

Re: Immanuel Lutheran Church Development Project

Dear City Council Members:

Our lot abuts the north property line of the Immanuel Lutheran Church (ILC) property. While our lot is not one of only 4 lots that abut the project site, the project is just a few lots down. We know there is a neighborhood group opposed to ILC going forward with this project and thought we would speak on behalf of ILC as a neighbor. There are many neighbors we've talked to in support of the project, we just haven't organized like the 15 or so homeowners opposed to the project. ILC has always been a very good neighbor. We also believe ILC does significant amounts of good work and service throughout the community.

We feel the project is nicely done. We think it is an excellent transition project between commercial (Jewel, Hobby Lobby, etc.) properties and our neighborhood to the north. We are in complete support of rezoning and variances requested for the project. The church/school just west of the project and the ballfields/high school property has always been a nice transition between commercial and residential, and we really don't see how/why this project is any different.

Also, we imagine at one time this neighborhood was probably rezoned from farm/agriculture to residential. We believe in some instances, (this being one) rezoning is a good idea.

Thank you for considering our opinion.

Sincerely,

Barbara Verseman

Steve Verseman

Barbara and Steve Verseman
27 Hill Drive
Crystal Lake IL 60014
708 280 0607 815 245 2428

Appendix C
Traffic Impact Study

Traffic Impact Study

Immanuel Lutheran Apartment Complex

Crystal Lake, Illinois

March 1st, 2024

Prepared for:

Prepared by:

Gewalt Hamilton Associates, Inc

GHA

Executive Summary

The following documents our approach, methodology and findings for a Traffic Impact Study of the proposed apartment complex to be located adjacent to Immanuel Lutheran School and Church on Teckler Boulevard and Pathway Court. Per the November 28, 2023 site plan prepared by AG Architecture, the formerly vacant parcel is being developed as a multifamily residential community comprised of fifteen apartment buildings and a clubhouse.

Some key considerations and findings of the updated study include:

- Traffic has been projected out to 2029 to reflect a 5-year buildout beyond the estimated buildout of the proposed 2024 development.
- The proposed development is not expected to generate significant peak hour traffic on the existing site roadways.
- Recommendations to accommodate traffic impacts have been made as part of our analyses and include:
  - Provide stop signs for side roads proposed to enter existing roadways.
  - Maintain the existing all way stop at Teckler Boulevard and Pathway Court traffic pattern through the new site access configuration.

This Summary and Study have been prepared by



Dan Brinkman, P.E.
Senior Transportation Engineer
dbrinkman@gha-engineers.com



David W. Westergreen, EIT
Traffic / Project Engineer
dwestergreen@gha-engineers.com

Part I. Introduction and Project Context

Gewalt Hamilton Associates, Inc. (GHA) was engaged by the City of Crystal Lake to conduct a Traffic Impact Study for the proposed apartment complex to be constructed at the vacant lot located northwest of the intersection between US Route 14 (Northwest Highway) and Main Street in Crystal Lake, Illinois. The approximately 24.4-acre subject site is located east of Main Street and north of the Crystal Lake Commons Shopping Center.

As proposed, the site development consists of constructing fifteen buildings, including four 23-unit apartment buildings and eleven 20-unit apartment buildings, each with two stories. Access to the entire development is proposed via Teckler Boulevard and Walkup Avenue to the south of the development. No new access onto Main Street or US Route 14 is proposed.

The following summarizes our findings and provides various recommendations for your consideration. *Appendices* referenced are in the Technical Addendum at the end of this document.

Part II. Background Information

Site Location Map and Roadway Inventory

Exhibit 1 provides a site location map. The existing traffic operations in the site area are illustrated on *Exhibit 2*. *Appendix A* provides a photo inventory of the site vicinity. Pertinent comments to the adjacent roadways include:

US Route 14 (Northwest Highway)

- US Route 14 is an east-west, Principal Arterial under the jurisdiction of the Illinois Department of Transportation (IDOT).
- Within the site vicinity, US Route 14 is designated as a Strategic Regional Arterial (SRA) Route by IDOT.
- Within the site vicinity, US Route 14 provides two travel lanes in each direction separated by a full-width (12-foot), flush median.
- As US Route 14 approaches the Main Street intersection it widens to provide dual left turn lanes in both directions and separate right turn lanes.
- US Route 14 provides single left turn lanes within the existing median at Teckler Boulevard and widens to provide a westbound right turn lane onto northbound Teckler Boulevard to access the site and Crystal Lake Commons.
- US Route 14 has a posted speed limit of 35 miles per hour (mph) in the vicinity of the site.
- US Route 14 is designated as a Class II Truck route.
- The Annual Average Daily Traffic (AADT), year 2022, on US Route 14 was 26,000 vehicles per day.

Main Street

- Main Street is a north-south Minor Arterial roadway under the jurisdiction of the City of Crystal Lake.
- Main Street provides two travel lanes in each direction separated by a full width (12-foot) flush median.
- Dual northbound and southbound left turn lanes are provided at the signalized intersection with US Route 14.
- Main Street has a posted speed limit of 35 mph in the site vicinity.
- The Annual Average Daily Traffic (AADT), year 2022, on Main Street was 14,200 vehicles per day.
- West of Main Street, Prairie Trail runs north-south as a pedestrian pathway, and crosses under US Route 14 via tunnel.



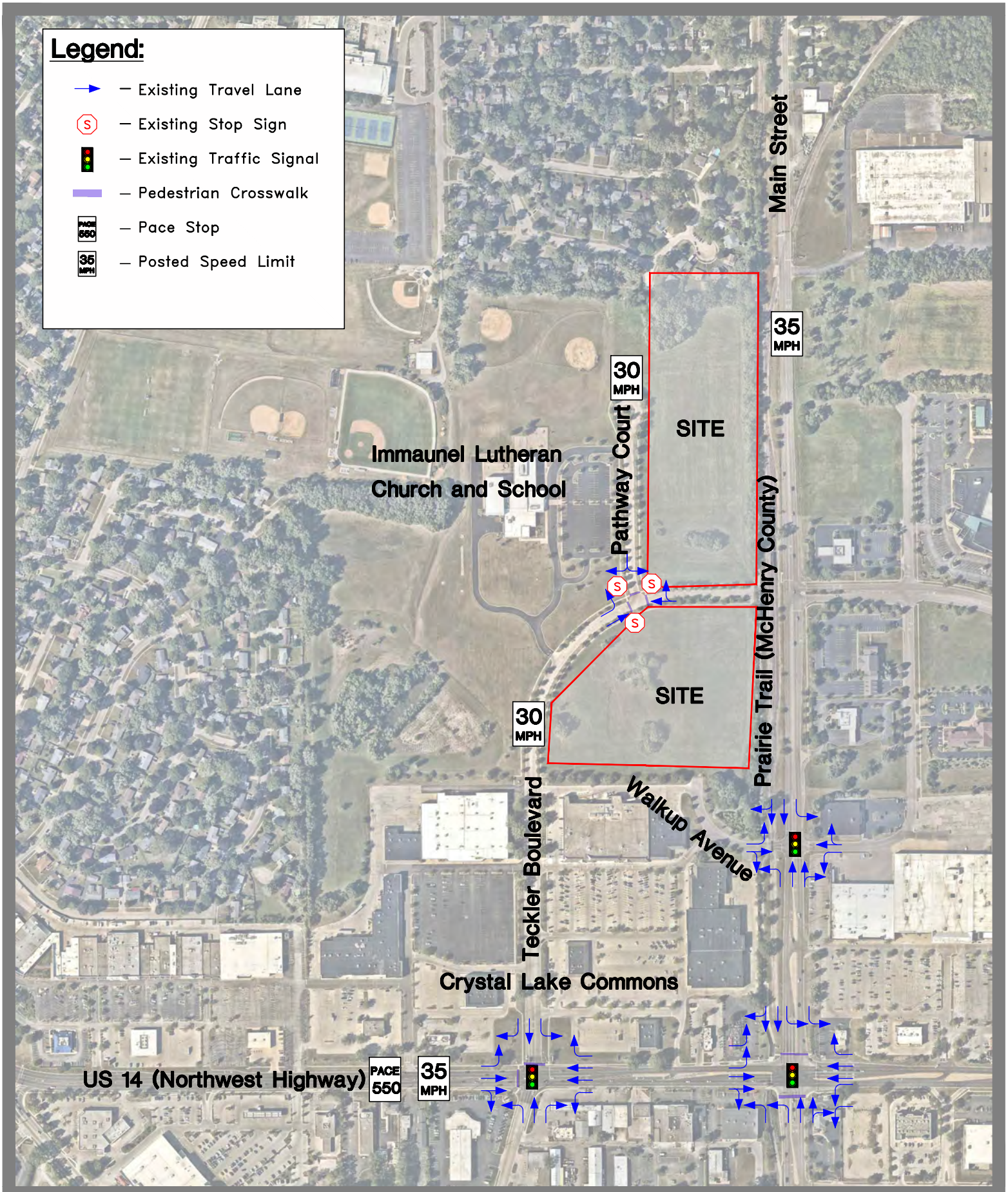
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1 inch = 1,000 Feet

Exhibit 1 - Location Map

Proposed Apartment Complex
Crystal Lake, IL

Map Center: 88.31862°W 42.23016°N



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Exhibit 2
Existing Traffic Operations

Teckler Boulevard

- Teckler Boulevard is a north-south major collector roadway south of US Route 14 that transitions to a local roadway north of US Route 14 and terminates before intersecting with Main Street to the northeast.
- Teckler Boulevard is under the jurisdiction of the City of Crystal Lake.
- Teckler Boulevard provides a two-lane urban cross-section with one travel lane in each direction.
- At its signalized intersection with US Route 14, Teckler Boulevard widens to provide a separate right turn and left turn lanes in both directions.
- Teckler Boulevard has a posted speed limit of 30 MPH.
- Teckler Boulevard provides access to Crystal Commons Shopping Center and is planned to be a primary access point for the proposed site access.

Walkup Avenue / Commonwealth Drive

- Walkup Avenue is an east-west local roadway that connects Crystal Commons Shopping Center with the shopping center east of Main Street.
- Walkup Avenue, east of Main Street, is known as Commonwealth Drive and connects the shopping center with Congress Parkway to the north of the site.
- Walkup Avenue is under the jurisdiction of the City of Crystal Lake.
- Walkup Avenue provides a two-lane urban cross-section with one travel lane in each direction.
- At its signalized intersection with Main Street, Walkup Avenue provides separate left-turn lanes in each direction.
- Walkup Avenue is utilized as a secondary access to both shopping centers in the existing condition, and terminates north of the intersection with Main Street, but is proposed to provide primary access to the proposed apartment complex.
- There is no posted speed limit along Walkup Avenue, but 25 mph is presumed where no posted speed limit exists.
- Walkup Avenue's signalized intersection with Main Street includes crossing over the Chicago/Northwestern Railroad Spur, which terminates just to the south of the intersection.

Pathway Court

- Pathway Court is a north-south local roadway that connects Teckler Boulevard with Immanuel Lutheran School and Church that provides a cul-de-sac and access to the school frontage.
- Pathway Court is under the jurisdiction of the City of Crystal Lake.
- Pathway Court provides a two-lane urban cross-section with one travel lane in each direction.
- At its stop-controlled intersection with Teckler Boulevard, Pathway Court provides one left and one right-turn only lane.
- Pathway Court has a posted speed limit of 30 mph.
- Proposed development for Pathway Court includes adding an access point to the proposed apartment complex west of the cul-de-sac.

Pedestrian Facilities

- Full sidewalk coverage is provided along the north side of US Route 14 from Teckler Boulevard to Main Street, throughout Teckler Boulevard, and throughout Pathway Court.
- Intermittent sidewalk coverage is provided along Main Street and the south side of US Route 14.
- Prairie Trail, under the jurisdiction of the McHenry County Conservation District (MCCD), extends along the west side of Main Street from north of the site vicinity south into the Villages of Lake in the Hills and Algonquin.
- Two standard-style crosswalks are present across the north and south legs of the US Route 14 intersection with Main Street.

- Two standard-style crosswalks are present across the north and west legs of the US Route 14 intersection with Teckler Boulevard.
- One standard-style crosswalk is present across the north leg of the Teckler Boulevard intersection with Pathway Court.
- One zebra-style crosswalk is present where the Prairie Trail crosses the west leg of the Walkup Avenue intersection with Main Street.

Transit

- Per the PACE website www.pacebus.com, Route 550 Elgin Transportation Center - Crystal Lake runs north-south along Main Street. No signs or stops are visible in the area.
- Approximately ¾ -mile to the northeast is the Pingree Road METRA Station along the UP-Northwest commuter rail line. Non-motorized connectivity to the subject site from the METRA station is not continuous.

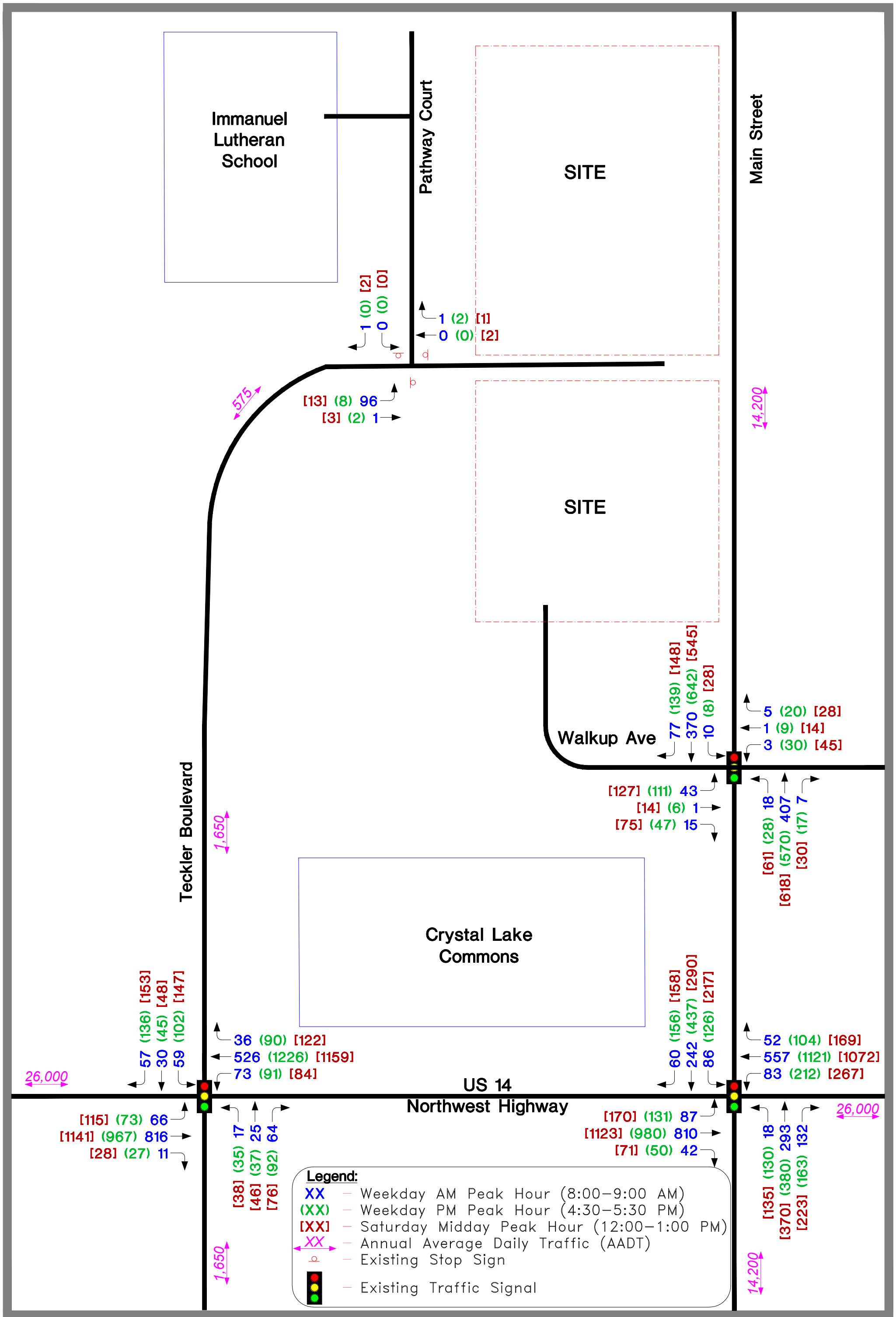
Existing Traffic

Exhibit 3 summarizes the existing weekday morning, weekday evening, and Saturday midday peak hour traffic volumes. Peak period traffic turning movements counts were conducted on Tuesday, January 30th, 2024, from 6:00 AM to 9:00 AM, and from 3:00 PM to 6:00 PM at the US Route 14 intersections with Main Street and Teckler Boulevard, at the Main Street and Walkup Avenue intersection, and at the Teckler Boulevard and Pathway Court intersection. Counts were also conducted on Saturday, January 27th, 2024, from 11:00 AM to 2:00 PM at the same intersections.

The weekday morning peak hour at the site intersections generally occurred from 8:00 to 9:00 AM, the weekday evening peak hour generally occurred from 4:30 to 5:30 PM, and the Saturday midday peak hour generally occurred from 12:00 to 1:00 PM. No unusual activities (e.g., roadway construction, or inclement weather) were observed during our counts that would be expected to impact traffic volumes or travel patterns in the vicinity.

Exhibit 3 also provides the Annual Average Daily Traffic (AADT) volume along US Route 14, Main Street, and Teckler Boulevard, obtained from IDOT's website: www.gettingaroundillinois.com.

The GHA traffic count summary sheets are provided in ***Appendix B***.



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Exhibit 3
Existing Traffic

Sources: 1) GHA January, 2024 2) IDOT 2023 AADT

Crash Analysis

Crash data was obtained from the IDOT Division of Transportation and Safety for the last five available calendar years, 2018 through 2022. A summary of the crash data is provided in ***Table 1*** with the locations mapped on the exhibit contained in ***Appendix C***. As shown in *Table 1*, of the 134 crashes in the vicinity of the proposed site entrances, 84 involved property damage only. There was one (1) reported fatal crash, one (1) reported Type-A (incapacitating injury) crash, thirteen (13) reported Type-B (non-incapacitating injury) crashes, and thirty-five (35) reported Type-C (non-evident injury) crashes, accounting for 37% of all crashes in the vicinity of the site being injury crashes. The fatal crash was a fixed object crash occurring at the US Route 14 intersection with Teckler Boulevard during dark and clear conditions. Three crashes involving pedestrians and pedalcyclists occurred within the site vicinity during this period, resulting in one Type-B injury and two Type-C injury crashes with pedestrians.

Table 1: Crash Data Summary

Location	No. Of Crashes	Severity [B]													Percent During Wet/Icy Conditions
		PD	PI [C]			F	A	FO	FTR	PMV	PD	PS	SSD	T	
			A	B	C										
Intersections - Crashes within 300' of intersection															
US Route 14 at Main Street	57	37	1	4	15	-	2	1	39	1	1	-	5	8	23%
US Route 14 at Teckler Drive	63	39	-	6	17	1	3	1	26	1	1	-	6	25	17%
Main Street at Walkup Avenue	13	8	-	3	2	-	1	1	3	-	-	1	-	7	8%
Teckler Drive at Pathway Court	1	0	-	-	1	-	1	-	-	-	-	-	-	-	0%
Total (2018-22)	134	84	1	13	35	1	7	3	68	2	2	1	11	40	19%

[A] Source: IDOT Division of Transportation Safety for the 2018-2022 calendar years.

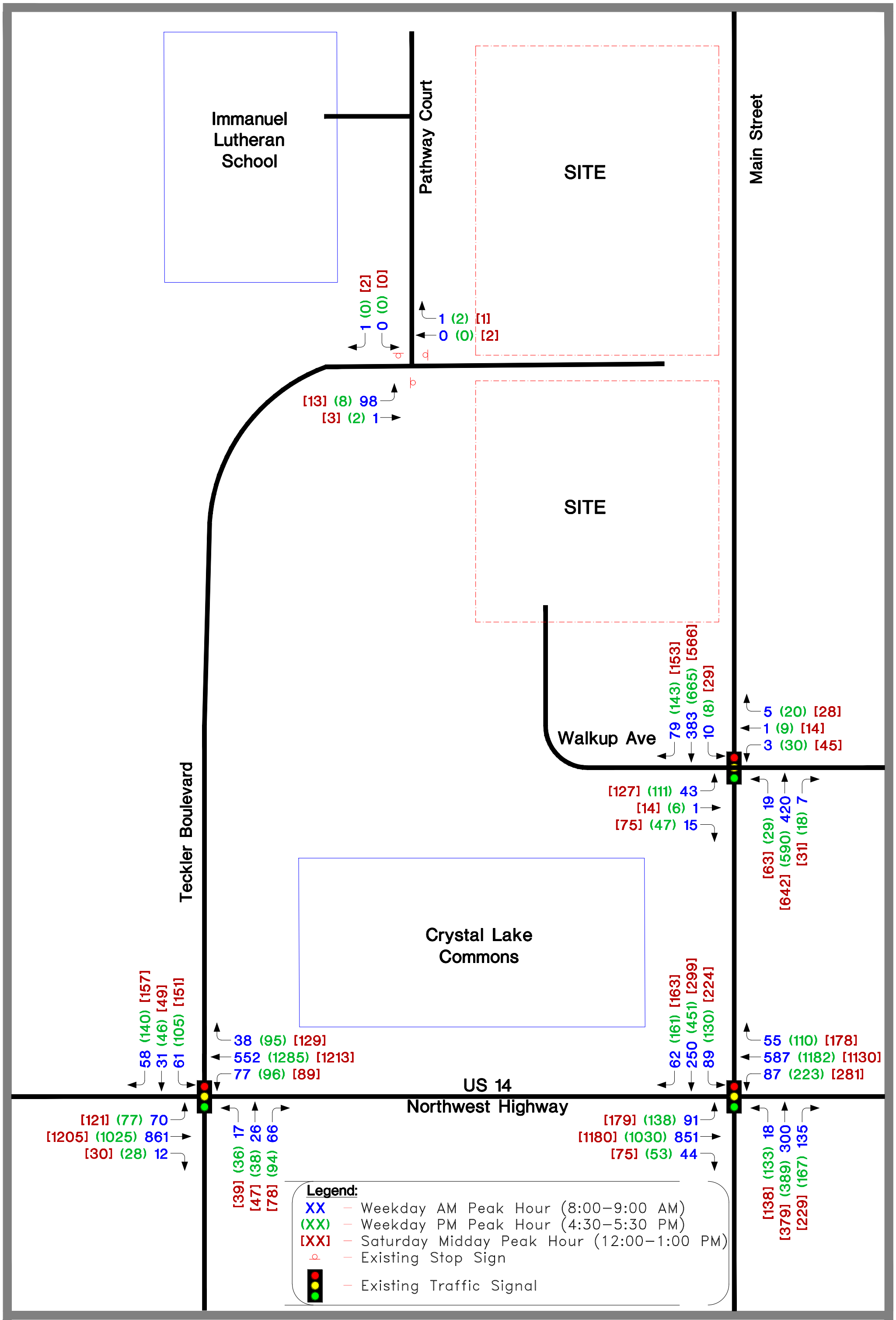
[B] PD = property damage only; PI = personal injury; F = fatality.

[C] Type A (incapacitating injury); Type B (non-incapacitating injury); Type C (possible injury).

[D] A = Angle; FO = Fixed Object; FTR = Front to Rear; PMV = Parked Motor Vehicle; PD = Pedestrian; PS = Pedalcyclist; SSD = Sideswipe, Same Direction; T = Turning

No-Build Traffic

Exhibit 4 summarizes the year 2029 No-Build weekday morning, weekday evening, and Saturday midday peak hour traffic volumes. Traffic growth in the area is a function of expected land development in the region. Future traffic volume conditions were developed for the year 2029, expected full build-out year of the completed development (year 2024) plus five years. Based on a review of historical traffic volumes and the Chicago Metropolitan Agency for Planning (CMAP) Year 2050 projections (see ***Appendix D***), traffic volumes along US Route 14 are assumed to experience an overall annual, compounded growth rate of approximately 1% per year. Volumes along Main Street are assumed to experience an overall, annual compounded growth rate of between 0.5% and 0.62% per year. Volumes along Teckler Boulevard are assumed to experience an overall, compounded growth rate of 0.5% per year.



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Exhibit 4
2029 No-Build Traffic

Part III. Project Traffic Characteristics

Future Site Characteristics

Proposed Development Plan

The proposed site plan prepared by AG Architecture and dated November 28th, 2023, is provided in ***Appendix E.*** As shown, the development consists of the construction of one clubhouse and fifteen new apartment buildings. The two-story, low rise apartments buildings consist of four buildings with 23 units and eleven buildings containing 20 units, for a total of 312 new apartment units. The proposed units are anticipated to be broken down into 177 1-Bedroom units, 105 2-Bedroom units, and 30 3-Bedroom units. A total of 558 parking spaces will be provided per the proposed site plan.

Vehicles are expected to enter the site via Teckler Boulevard and Walkup Avenue. Access to the proposed site will be created via two entrances along Teckler Boulevard, including the east leg of the Teckler Boulevard intersection with Pathway Court. This intersection is proposed to be slightly realigned to accommodate the new access to the site. Additional access to the site is proposed via one drive along Pathway Court's cul-de-sac. Site access is also proposed via an extension of Walkup Avenue.

Trip Generation

Table 2 summarizes the traffic generation calculations for the proposed development. Trip generation rates published by the Institute of Transportation Engineers (ITE) in the 11th Edition of the Manual *Trip Generation* were used to determine the anticipated traffic generated by the proposed multi-family development. See *Appendix F* for excerpts from the ITE manual.

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Table 2: Trip Generation Calculations

Land Use	Units	ITE Code	Weekday Peak Hours						Saturday		
			Morning			Evening			Midday		
			In	Out	Sum	In	Out	Sum	In	Out	Sum
Apartment Complex - Low Rise Housing											
Immanuel Lutheran Apartments	312 Units	220	29	91	120	98	57	155	64	64	128
Total New Trips:			29	91	120	98	57	155	64	64	128

Source: ITE Trip Generation Manual, 11th Edition

As shown in *Table 2*, a proposed apartment complex of this size is expected to generate 120 total new trips (29 in and 91 out) during the weekday morning peak hour, 155 total new trips (98 in and 57 out) during the weekday evening peak hour, and 128 total new trips (64 in and 64 out) during the Saturday midday peak hour.

Note that ITE data for Low-Rise Apartment Complexes is limited for the Saturday Midday peak hour. Trips for this peak hour were estimated via the published ITE average rate provided and appear to be a conservative estimate for the Saturday midday peak hour

Trip Distribution

Table 3 indicates the anticipated traffic distribution approaching and departing the site. ***Exhibit 5*** also provides the anticipated distribution of new site traffic. This was based on existing area travel patterns, proposed access driveways, and the operational characteristics of the adjacent street system.

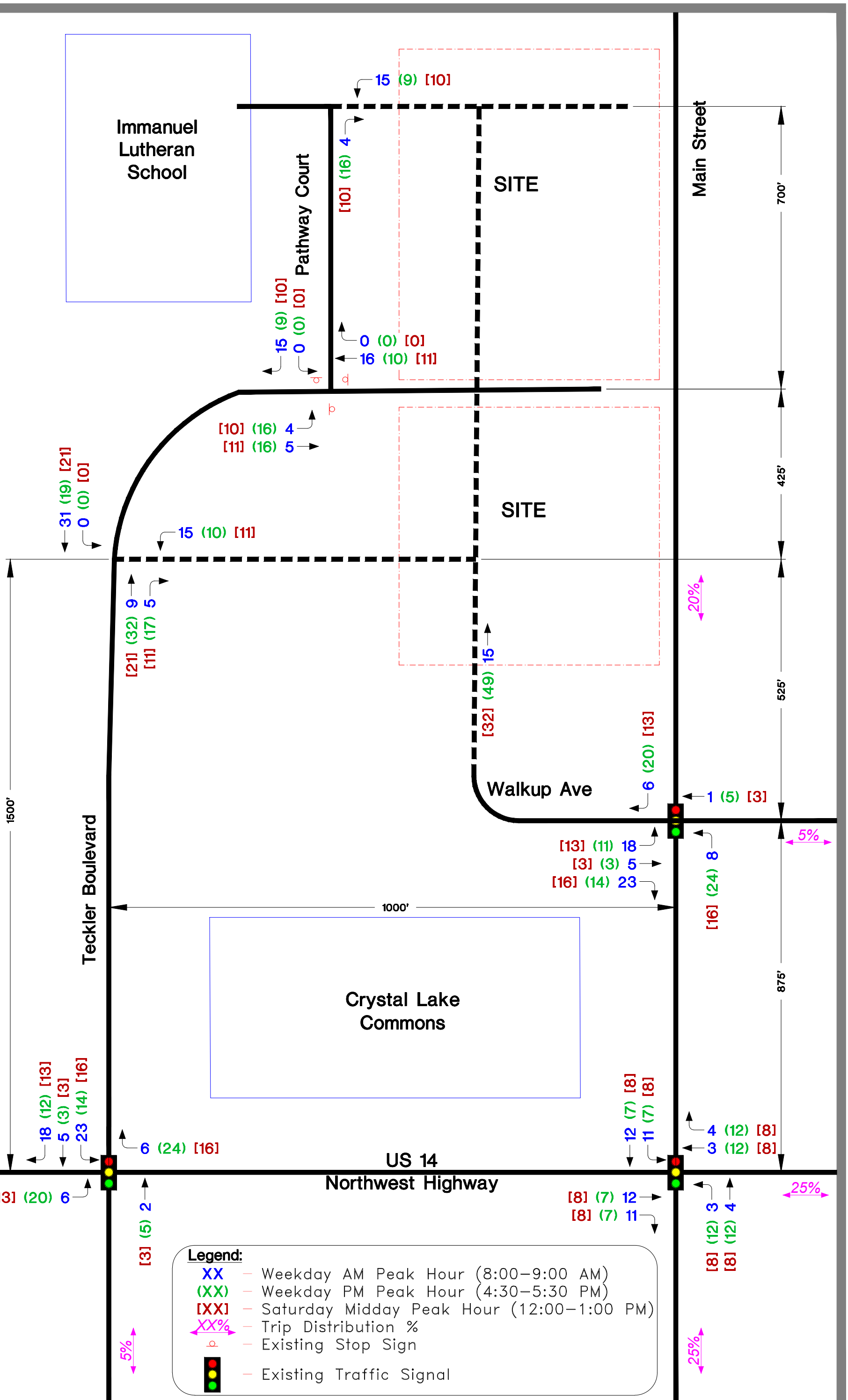
Table 3: Trip Distribution

Route & Direction	Approach Site From	Depart Site To
US Route 14		
East of Main Street	25%	25%
West of Teckler Boulevard	20%	20%
Main Street		.
North of Walkup Avenue	20%	20%
South of US Route 14	25%	25%
Teckler Boulevard		.
South of US Route 14	5%	5%
Walkup Avenue / Commonwealth Drive		.
East of Main Street	5%	5%
Totals =	*100%*	*100%*

Site and Total Traffic Assignments

Exhibit 5 illustrates the new site traffic assignments, for the proposed apartment complex trips, which is based on the traffic characteristics summarized in Tables 2 and 3 (traffic generation and trip distribution) and assigned to the area roadways. As previously noted, the proposed development is anticipated to be initiated in 2024. Therefore, we have considered the total impacts of the development for the year 2029, or buildout plus five years.

The new site traffic (*Exhibit 5*), and the year 2029 No-Build traffic (*Exhibit 4*) were combined to produce the year 2029 Total traffic, which is illustrated on ***Exhibit 6***.

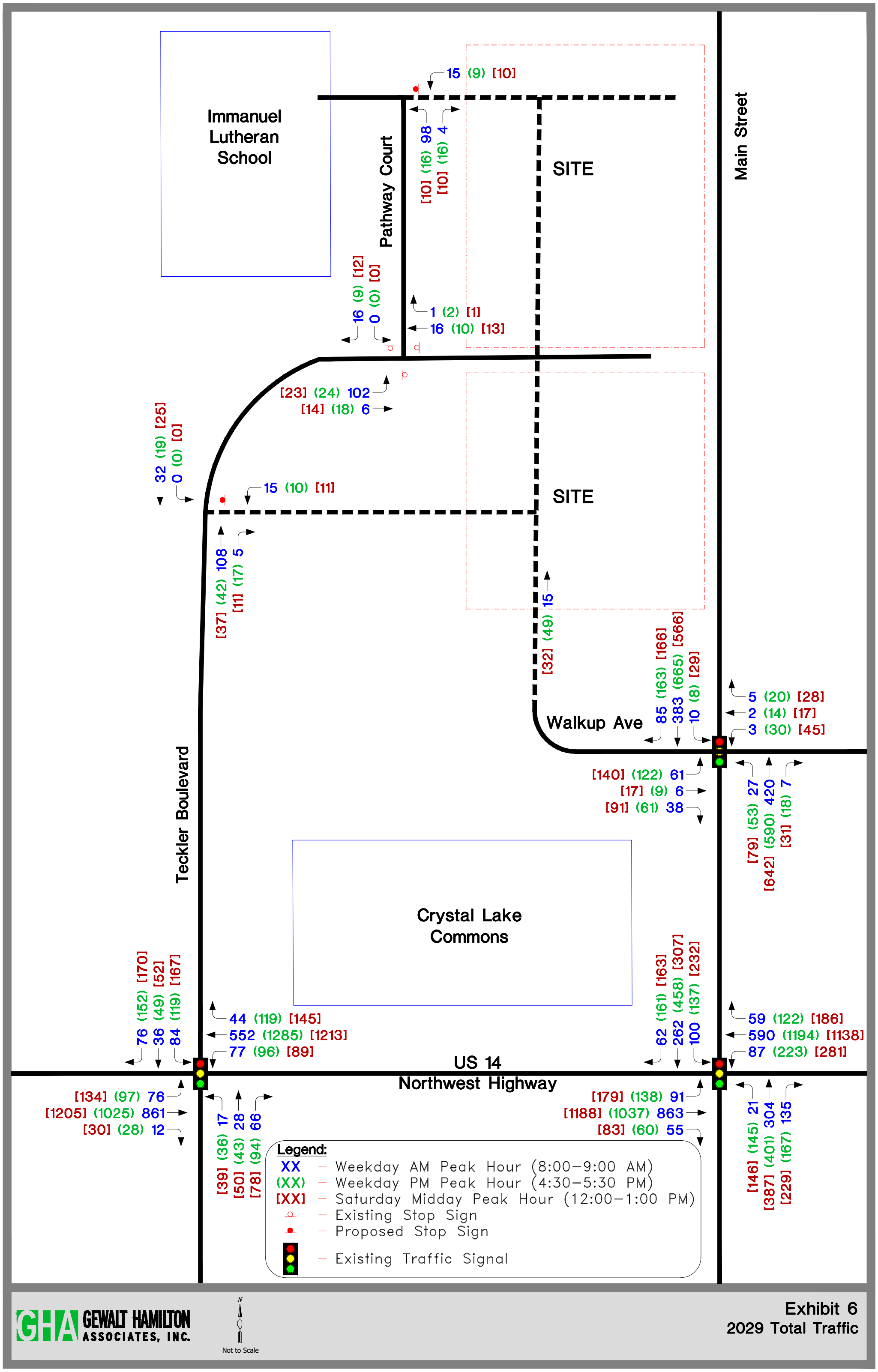


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Exhibit 5
Site Traffic



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Exhibit 6
2029 Total Traffic

Part IV. Traffic Evaluation

Capacity Analysis

Capacity analyses are a standard measurement that identifies how an intersection operates. They are measured in terms of Level of Service (LOS). The concept of LOS is defined as a qualitative measure describing operational conditions within a traffic stream and their perception by motorists and/or passengers. A level-of-service definition provides an index to quality of traffic flow in terms of such factors as speed, travel time, freedom to maneuver, traffic interruptions, comfort, convenience, and safety.

Six Levels of Service are defined for each type of facility. They are given letter designations from A to F, with LOS A representing the best operating conditions and LOS F the worst. LOS C is often considered acceptable for design purposes and LOS D is usually considered as providing the lower threshold of acceptable operations. Since the level of service is a function of the traffic flows placed upon it, the facility may operate at a wide range of levels of service, depending on the time of day, day of week or period of year. A description of the operating condition under each level of service, based on the analysis parameters as published in the Transportation Research Board's (TRB) *Highway Capacity Manual* (HCM), Sixth Edition, is provided in ***Table 4***

Table 4: Level of Service (LOS) Summary

LOS	Description	Delay (sec/veh)	
		Traffic Signal	Stop Sign
A	Describes conditions with little to no delay to motorists.	<10	< 10
B	Represents a desirable level with relatively low delay to motorists.	>10 and < 20	>10 and < 15
C	Describes conditions with average delays to motorists.	>20 and < 35	>15 and < 25
D	Describes operations where the influence of congestion becomes more noticeable. Delays are still within an acceptable range.	>35 and < 55	>25 and < 35
E	Represents operating conditions with high delay values. This level is often considered within urban settings or for minor streets intersecting major arterial roadways to be the limit of acceptable delay.	>55 and < 80	>35 and < 50
F	Is unacceptable to most drivers with high delay values that often occur, when arrival flow rates exceed the capacity of the intersection.	>80	>50

Capacity analyses were performed, in accordance with IDOT guidelines, for three scenarios:

- *Existing Traffic* - Existing traffic (year 2024),
- *No-Build Traffic* – Future (non-site, year 2029) traffic with background growth and
- *Total Traffic* – Future No-Build traffic volumes (year 2029) plus the addition of site generated traffic.

Table 5 summarizes the intersection capacity and queue analysis results. Capacity analysis summary printouts are provided in ***Appendix G***.

Table 5: Level-of-Service Summary

Intersection / Timeframe		Roadway Conditions	Movement Group By Approach > = Shared Lane - = Non Critical or not Allowed Movement												Overall Intersection
			Eastbound			Westbound			Northbound			Southbound			
1. US Route 14 at Main Street		Traffic Signal	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	-
AM Peak	A.Existing (See Exhibit 3)	• LOS	E	B	B	E	B	B	E	D	D	E	D	D	C
		• Delay (sec)	61.5	11.4	12.2	65.9	10.2	12.3	67.3	45.9	50.0	66.3	37.9	40.2	26.9
		• 95th Queue Length (ft)	45	211	216	68	130	33	15	269	270	71	182	185	-
		• Approach LOS (Delay)	B (16.4)			B (17.0)			D (48.7)			D (45.1)			-
	B. 2029 No-Build (See Exhibit 4)	• LOS	E	B	B	E	B	B	E	D	D	E	D	D	C
		• Delay (sec)	61.6	12.2	13.0	65.8	10.6	12.6	67.3	45.6	49.7	66.2	37.5	39.8	27.0
		• 95th Queue Length (ft)	47	228	233	71	141	35	15	273	275	74	187	190	-
		• Approach LOS (Delay)	B (17.1)			B (17.3)			D (48.4)			D (44.8)			-
	C. 2029 Total (See Exhibit 6)	• LOS	E	B	B	E	B	B	E	D	D	E	D	D	C
		• Delay (sec)	61.6	12.7	13.7	65.8	11.0	12.7	67.0	45.6	49.7	65.9	37.3	39.5	27.4
		• 95th Queue Length (ft)	47	237	244	71	145	38	18	275	277	83	192	195	-
		• Approach LOS (Delay)	B (17.6)			B (17.6)			D (48.5)			D (44.9)			-
PM Peak	A.Existing (See Exhibit 3)	• LOS	E	C	C	E	B	B	E	D	D	E	D	D	D
		• Delay (sec)	71.3	21.5	22.5	77.9	17.4	15.8	73.3	45.9	50.6	74.9	48.1	52.3	36.2
		• 95th Queue Length (ft)	76	376	386	198	357	81	116	343	343	114	378	376	-
		• Approach LOS (Delay)	C (27.5)			C (26.2)			D (53.0)			D (54.5)			-
	B. 2029 No-Build (See Exhibit 4)	• LOS	E	C	C	F	B	B	E	D	D	E	D	D	D
		• Delay (sec)	71.2	23.1	24.0	80.2	18.6	16.2	73.2	45.9	50.6	75.5	48.4	52.6	37.0
		• 95th Queue Length (ft)	80	413	423	210	394	87	119	350	350	119	390	387	-
		• Approach LOS (Delay)	C (28.9)			C (27.5)			D (53.0)			D (54.8)			-
	C. 2029 Total (See Exhibit 6)	• LOS	E	C	C	E	B	B	E	D	D	E	D	D	D
		• Delay (sec)	71.2	23.6	24.7	81.2	19.0	16.4	74.4	46.3	50.9	76.6	48.9	53.2	37.6
		• 95th Queue Length (ft)	81	425	436	211	405	98	131	358	357	126	397	393	-
		• Approach LOS (Delay)	C (29.4)			C (27.8)			D (53.8)			E (55.6)			-
SAT Peak	A.Existing (See Exhibit 3)	• LOS	E	C	C	E	B	B	E	E	E	F	D	D	D
		• Delay (sec)	63.2	23.5	24.7	74.9	15.6	13.6	65.1	62.9	70.3	83.5	44.9	49.7	38.9
		• 95th Queue Length (ft)	86	391	402	194	264	105	101	377	363	170	240	242	-
		• Approach LOS (Delay)	C (29.0)			C (25.9)			E (66.2)			E (59.0)			-
	B. 2029 No-Build (See Exhibit 4)	• LOS	E	C	C	E	B	B	E	E	E	F	D	D	D
		• Delay (sec)	63.1	25.4	26.6	78.0	16.4	13.9	65.1	64.7	72.3	88.4	45.5	50.4	40.2
		• 95th Queue Length (ft)	90	432	445	207	289	111	103	391	376	180	249	250	-
		• Approach LOS (Delay)	C (30.6)			C (27.0)			E (67.7)			E (61.1)			-
	C. 2029 Total (See Exhibit 6)	• LOS	E	C	C	E	B	B	E	E	E	F	D	D	D
		• Delay (sec)	63.1	25.8	27.2	78.7	16.6	14.0	65.0	65.8	73.4	94.9	46.3	51.1	41.1
		• 95th Queue Length (ft)	90	443	457	208	293	116	108	399	383	191	255	255	-
		• Approach LOS (Delay)	C (29.4)			C (27.8)			D (53.8)			E (55.6)			-

Table 5: Level-of-Service Summary (cont.)

Intersection / Timeframe		Roadway Conditions	Movement Group By Approach > = Shared Lane - = Non Critical or not Allowed Movement												Overall Intersection
			Eastbound			Westbound			Northbound			Southbound			
2. US Route 14 at Teckler Blvd		Traffic Signal	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	-
AM Peak	A.Existing (See Exhibit 3)	• LOS	A	A	A	A	A	A	D	E	E	D	D	D	B
		• Delay (sec)	5.7	2.7	2.8	5.7	2.0	4.8	52.8	56.4	68.0	49.2	52.1	51.6	10.3
		• 95th Queue Length (ft)	27	63	67	29	34	13	27	44	22	90	49	95	-
		• Approach LOS (Delay)		A (2.9)			A (2.5)			E (62.8)			D (50.7)		-
	B. 2029 No-Build (See Exhibit 4)	• LOS	A	A	A	A	A	A	D	E	E	D	D	D	B
		• Delay (sec)	5.7	2.8	3.0	5.8	2.1	4.8	52.8	56.5	68.8	49.1	52.0	51.3	10.3
		• 95th Queue Length (ft)	29	70	74	31	37	14	27	46	132	93	51	96	-
		• Approach LOS (Delay)		A (3.1)			A (2.7)			E (63.4)			D (50.5)		-
	C. 2029 Total (See Exhibit 6)	• LOS	A	A	A	A	A	A	D	E	E	D	D	D	B
		• Delay (sec)	6.3	3.5	3.7	6.5	2.7	5.0	52.8	56.8	68.8	48.3	50.4	50.3	11.7
		• 95th Queue Length (ft)	33	86	90	34	49	17	27	49	132	127	58	125	-
		• Approach LOS (Delay)		A (3.8)			A (3.3)			E (63.3)			D (49.5)		-
PM Peak	A.Existing (See Exhibit 3)	• LOS	A	A	A	A	A	A	E	E	E	D	E	E	B
		• Delay (sec)	7.5	3.6	3.9	7.1	3.3	5.2	57.1	62.6	78.7	53.1	56.6	62.8	12.9
		• 95th Queue Length (ft)	33	95	105	41	106	35	56	66	187	158	75	230	-
		• Approach LOS (Delay)		A (4.0)			A (3.7)			E (70.5)			E (58.3)		-
	B. 2029 No-Build (See Exhibit 4)	• LOS	A	A	A	A	A	A	E	E	E	D	E	E	B
		• Delay (sec)	7.8	3.9	4.3	7.4	3.7	5.4	56.9	62.4	78.5	52.8	56.3	62.5	12.9
		• 95th Queue Length (ft)	36	107	118	44	119	37	57	67	190	162	76	234	-
		• Approach LOS (Delay)		A (4.3)			A (4.0)			E (70.3)			E (58.0)		-
	C. 2029 Total (See Exhibit 6)	• LOS	A	A	A	A	A	A	E	E	E	D	E	E	B
		• Delay (sec)	8.3	4.4	4.7	8.0	4.4	5.7	56.8	62.8	78.1	52.4	55.3	60.8	13.7
		• 95th Queue Length (ft)	47	119	129	46	142	49	57	76	190	184	80	248	-
		• Approach LOS (Delay)		A (4.9)			A (4.8)			E (69.8)			E (56.8)		-
SAT Peak	A.Existing (See Exhibit 3)	• LOS	A	A	A	A	A	A	D	E	E	D	D	D	B
		• Delay (sec)	8.4	5.3	5.6	8.5	5.2	5.6	51.6	58.4	68.3	47.8	49.5	53.5	13.5
		• 95th Queue Length (ft)	52	144	154	39	145	31	54	76	136	201	70	225	-
		• Approach LOS (Delay)		A (5.7)			A (5.4)			E (61.5)			D (50.5)		-
	B. 2029 No-Build (See Exhibit 4)	• LOS	A	A	A	A	A	A	E	E	E	D	E	E	B
		• Delay (sec)	8.8	5.7	6.1	8.9	5.6	6.0	51.4	58.1	68.1	47.9	49.3	53.2	13.5
		• 95th Queue Length (ft)	31	89	95	23	88	28	30	43	78	117	39	134	-
		• Approach LOS (Delay)		A (6.2)			A (5.8)			E (61.3)			D (50.4)		-
	C. 2029 Total (See Exhibit 6)	• LOS	A	A	A	A	A	A	E	E	E	D	E	E	B
		• Delay (sec)	9.2	5.8	6.2	9.1	5.9	6.3	51.1	58.1	67.2	49.4	49.2	53.5	14.1
		• 95th Queue Length (ft)	35	91	97	24	93	33	30	45	77	133	42	146	-
		• Approach LOS (Delay)		A (6.3)			A (6.2)			E (60.8)			D (51.1)		-

Table 5: Level-of-Service Summary (cont.)

Intersection / Timeframe		Roadway Conditions	Movement Group By Approach > = Shared Lane - = Non Critical or not Allowed Movement												Overall Intersection
			Eastbound			Westbound			Northbound			Southbound			
3. Main Street at Walkup Ave		Traffic Signal	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	-
AM Peak	A.Existing (See Exhibit 3)	• LOS	D	D	<	D	D	<	A	A	A	A	A	B	B
		• Delay (sec)	44.4	54.6	-	42.4	53.3	-	9.1	8.7	8.9	8.9	8.8	11.2	12.1
		• 95th Queue Length (ft)	65	28	-	4	10	-	10	96	97	6	107	128	-
		• Approach LOS (Delay)	D (47.1)			D (49.6)			A (8.8)			A (9.9)			-
	B. 2029 No-Build (See Exhibit 4)	• LOS	D	D	<	D	D	<	A	A	A	A	A	B	B
		• Delay (sec)	44.4	54.6	-	42.4	53.3	-	9.1	8.7	8.9	8.9	8.9	11.2	12.1
		• 95th Queue Length (ft)	65	28	-	4	10	-	11	99	101	6	111	131	-
		• Approach LOS (Delay)	D (47.1)			D (49.6)			A (8.8)			A (9.9)			-
	C. 2029 Total (See Exhibit 6)	• LOS	D	D	<	D	D	<	A	A	A	A	A	B	B
		• Delay (sec)	45.4	59.0	-	42.5	53.4	-	9.2	8.7	8.9	8.9	8.9	11.4	14.1
		• 95th Queue Length (ft)	94	81	-	4	12	-	16	99	101	6	113	136	-
		• Approach LOS (Delay)	D (51.1)			D (50.1)			A (8.9)			B (10.1)			-
PM Peak	A.Existing (See Exhibit 3)	• LOS	E	E	<	E	E	<	A	A	A	A	A	A	B
		• Delay (sec)	58.8	64.8	-	63.5	75.0	-	5.9	1.3	1.6	6.0	1.8	4.0	10.7
		• 95th Queue Length (ft)	180	95	-	50	59	-	11	25	31	3	43	93	-
		• Approach LOS (Delay)	E (60.7)			E (69.2)			A (1.7)			A (2.9)			-
	B. 2029 No-Build (See Exhibit 4)	• LOS	E	E	<	E	E	<	A	A	A	A	A	A	B
		• Delay (sec)	58.8	64.8	-	63.5	75.0	-	5.9	1.3	1.7	6.0	1.9	4.1	10.5
		• 95th Queue Length (ft)	180	95	-	50	59	-	11	26	32	3	45	97	-
		• Approach LOS (Delay)	E (60.7)			E (69.2)			A (1.7)			A (3.0)			-
	C. 2029 Total (See Exhibit 6)	• LOS	E	E	<	E	E	<	A	A	A	A	A	A	B
		• Delay (sec)	58.5	66.0	-	63.5	76.9	-	6.2	1.6	1.9	6.6	2.4	5.0	11.8
		• 95th Queue Length (ft)	196	127	-	50	70	-	21	30	36	3	58	118	-
		• Approach LOS (Delay)	E (61.3)			E (70.6)			A (2.1)			A (3.7)			-
SAT Peak	A.Existing (See Exhibit 3)	• LOS	B	C	<	B	C	<	B	B	B	B	B	B	B
		• Delay (sec)	16.0	20.1	-	18.7	21.6	-	12.4	11.9	12.1	12.6	13.2	14.3	13.8
		• 95th Queue Length (ft)	55	49	-	21	25	-	20	102	103	9	123	125	-
		• Approach LOS (Delay)	B (17.7)			C (20.1)			B (12.0)			B (13.7)			-
	B. 2029 No-Build (See Exhibit 4)	• LOS	B	C	<	B	C	<	B	B	B	B	B	B	B
		• Delay (sec)	16.4	20.5	-	19.1	22.1	-	12.4	11.7	12.0	12.5	13.1	14.3	13.8
		• 95th Queue Length (ft)	56	51	-	22	26	-	21	107	107	10	129	131	-
		• Approach LOS (Delay)	B (18.1)			C (20.5)			B (11.9)			B (13.6)			-
	C. 2029 Total (See Exhibit 6)	• LOS	B	C	<	B	C	<	B	B	B	B	B	B	B
		• Delay (sec)	16.7	21.8	-	20.0	23.2	-	12.7	11.7	11.9	12.9	13.7	15.0	14.3
		• 95th Queue Length (ft)	64	65	-	23	29	-	27	109	110	10	139	141	-
		• Approach LOS (Delay)	B (18.9)			C (21.6)			B (11.9)			B (14.3)			-

Table 5: Level-of-Service Summary (cont.)

Intersection / Timeframe		Roadway Conditions	Movement Group By Approach > = Shared Lane - = Non Critical or not Allowed Movement											
			Eastbound			Westbound			Northbound			Southbound		
4. Teckler Blvd at Pathway Court		TWSC - EB/WB Stops	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
AM Peak	A.Existing (See Exhibit 3)	• LOS	B	A	<	A	-	-	-	-	-	A	-	-
		• Delay (sec)	10.6	7.5	-	6.7	-	-	-	-	-	7.0	-	-
		• 95th Queue Length (ft)	42.5	0	-	0	-	-	-	-	-	0	-	-
		• Approach LOS (Delay)	B (10.6)			A (6.7)			-			A (7.0)		
	B. 2029 No-Build (See Exhibit 4)	• LOS	B	A	<	A	-	-	-	-	-	A	-	-
		• Delay (sec)	10.7	7.2	-	6.7	-	-	-	-	-	7.0	-	-
		• 95th Queue Length (ft)	45	0	-	0	-	-	-	-	-	0	-	-
		• Approach LOS (Delay)	B (10.7)			A (6.7)			-			A (7.0)		
	C. 2029 Total (See Exhibit 6)	• LOS	B	A	<	A	-	-	-	-	-	A	-	-
		• Delay (sec)	11.3	7.4	-	7.7	-	-	-	-	-	7.4	-	-
		• 95th Queue Length (ft)	50	3	-	5	-	-	-	-	-	5	-	-
		• Approach LOS (Delay)	B (11.3)			A (7.7)			-			A (7.4)		
PM Peak	A.Existing (See Exhibit 3)	• LOS	A	A	<	A	-	-	-	-	-	A	-	-
		• Delay (sec)	7.8	7.2	-	6.4	-	-	-	-	-	6.9	-	-
		• 95th Queue Length (ft)	0	0	-	0	-	-	-	-	-	0	-	-
		• Approach LOS (Delay)	A (7.7)			A (6.4)			-			A (6.9)		
	B. 2029 No-Build (See Exhibit 4)	• LOS	A	A	<	A	-	-	-	-	-	A	-	-
		• Delay (sec)	7.8	7.2	-	6.4	-	-	-	-	-	6.9	-	-
		• 95th Queue Length (ft)	0	0	-	0	-	-	-	-	-	0	-	-
		• Approach LOS (Delay)	A (7.7)			A (6.4)			-			A (6.9)		
	C. 2029 Total (See Exhibit 6)	• LOS	A	A	<	A	-	-	-	-	-	A	-	-
		• Delay (sec)	8.0	7.4	-	7.1	-	-	-	-	-	6.5	-	-
		• 95th Queue Length (ft)	3	3	-	3	-	-	-	-	-	0	-	-
		• Approach LOS (Delay)	A (7.7)			A (7.1)			-			A (6.5)		
SAT Peak	A.Existing (See Exhibit 3)	• LOS	A	A	<	A	-	-	-	-	-	A	-	-
		• Delay (sec)	7.8	7.2	-	6.8	-	-	-	-	-	6.4	-	-
		• 95th Queue Length (ft)	3	0	-	0	-	-	-	-	-	0	-	-
		• Approach LOS (Delay)	A (7.7)			A (6.8)			-			A (6.4)		
	B. 2029 No-Build (See Exhibit 4)	• LOS	A	A	<	A	-	-	-	-	-	A	-	-
		• Delay	7.8	7.2	-	6.8	-	-	-	-	-	6.4	-	-
		• 95th Queue Length (ft)	3	0	-	0	-	-	-	-	-	0	-	-
		• Approach LOS (Delay)	A (7.7)			A (6.8)			-			A (6.4)		
	C. 2029 Total (See Exhibit 6)	• LOS	A	A	<	A	-	-	-	-	-	A	-	-
		• Delay	8.0	7.4	-	7.1	-	-	-	-	-	6.5	-	-
		• 95th Queue Length (ft)	3	3	-	3	-	-	-	-	-	0	-	-
		• Approach LOS (Delay)	A (7.7)			A (7.1)			-			A (6.5)		

The following summarizes the findings of the Capacity Analyses. The three signalized intersections are interconnected and operate under phases together at all peak hours with the exception of Main Street at Walkup Avenue during the Saturday Midday peak hour, when the signal is programmed to be free-flowing.

US Route 14 at Main Street

This signal-controlled intersection operates at LOS "C" in the weekday morning peak hour under existing, no build, and future traffic conditions, while deteriorating to LOS "D" in the weekday evening and Saturday midday peak hours for existing, no-build, and future traffic conditions. Southbound left turns along Main Street were estimated to be LOS "F", or failing, in the existing, no-build, and future traffic conditions. The impact of the site traffic is negligible, as this traffic signal in the existing conditions shows significant delays.

US Route 14 at Teckler Boulevard

This signal-controlled intersection operates at LOS "B" in the weekday morning, weekday evening, and Saturday midday peak hours under existing, no build, and future traffic conditions. Traffic operations along US Route 14 are maintained at LOS "A" for all movements, and the traffic operations along Teckler Boulevard are maintained at LOS "D" or LOS "E" from the no-build to the future traffic condition in all peak hours. The impact of the site traffic is negligible.

Main Street at Walkup Avenue

This signal-controlled intersection operates at LOS "B" in the weekday morning, weekday evening, and Saturday midday peak hours under existing, no build, and future traffic conditions. Traffic operations along Main Street are maintained at LOS "A" for all movements during the weekday morning and weekday evening peak hours, and the traffic operations along Walkup Avenue are maintained at LOS "D" in the weekday morning peak hour and LOS "E" in the weekday evening peak hour for all movements. Because the signal is run free on Saturday midday, the operations along Walkup Avenue are improved to LOS "B" and LOS "C". Eastbound left turns exiting the site include queue lengths greater than the existing storage length along Walkup Avenue, but due to the railroad crossing in this area, the roadway geometry is very limited.

Teckler Boulevard at Pathway Court

All individual movements at this unsignalized intersection are expected to remain at LOS "A" or LOS "B" for all three peak hours during all three traffic years analyzed. This intersection can readily accommodate traffic generated by the proposed apartment complex.

Part V. Recommendations and Conclusions

Analyses have been conducted under existing and future conditions to determine the impact from both the background growth and non-project specific traffic as well as the traffic generated by the proposed apartment complex on the study area intersections. The capacity analysis results indicate that the increase from project site-generated traffic does not include significant delay additions to the surrounding intersections.

We offer the following recommendation for your consideration:

- Propose stop signs along the two proposed site entrances onto Teckler Boulevard and Pathway Court for traffic exiting the site.
- Maintain the existing all way stop at Teckler Boulevard and Pathway Court traffic pattern through the new site access configuration.

Part VI. Technical Addendum

The following Appendices were previously referenced. They provide technical support for our observations, findings and recommendations discussed in the text.

Appendices

A. Photo Inventory
B. Traffic Count Summaries
C. Crash Data Map
D. CMAP Traffic Projections
E. November 28th, 2023 Site Plan
F. ITE Trip Generation Excerpts
G. HCS Summary reports

5423.955 - Crystal Lake Apartment Complex Traffic Impact Study.docx

TECHNICAL ADDENDUM

GHA GEWALT HAMILTON ASSOCIATES, INC.

APPENDIX A
Photo Inventory



Looking North from Teckler Boulevard at Site



Looking Northwest along Teckler Boulevard at Pathway Court Intersection



Looking North at the Teckler Boulevard/Pathway Court intersection



Looking Northeast at the Teckler Boulevard/Pathway Court intersection



Looking Southeast at the Teckler Boulevard/Pathway Court intersection



Looking Southwest at the Teckler Boulevard/Pathway Court intersection



Looking Northwest at Immanuel Lutheran Church



Looking Northeast at Site



Looking Southwest at the US 14/Teckler Boulevard Intersection



Looking Southeast at the US 14/Teckler Boulevard Intersection



Looking Northeast at the US 14/Teckler Boulevard Intersection



Looking Northwest at the US 14/Teckler Boulevard Intersection



Looking Southeast at the US 14/Main Street Intersection



Looking Southwest at the US 14/Main Street Intersection



Looking Northeast at the US 14/Main Street Intersection



Looking Northwest at the US 14/Main Street Intersection



Looking Northeast at the Main Street/Walkup Avenue Intersection



LookingSoutheast the Main Street/Walkup Avenue Intersection



Looking Northwest at the Main Street/Walkup Avenue Intersection



Looking Southeast at the Main Street/Walkup Avenue Intersection

APPENDIX B

Traffic Count Summary Sheets

Main St & Northwest Hwy (US-14)
5423.955 - Crystal Lake Immanuel Lutheran Apartment Complex
10 AM - 1 PM
GHA Mio

Gewalt Hamilton Associates Inc.
625 Forest Edge Drive

Vernon Hills, Illinois, United States 60061
(847) 478-9700 poster@gha-engineers.com

Count Name: Main St & Northwest Hwy (US-14)
Site Code:
Start Date: 01/27/2024

Turning Movement Data

Start Time	Main St Southbound						US 14 Westbound						Main St Northbound						US 14 Eastbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
10:00 AM	0	36	78	25	0	139	0	42	199	31	0	272	0	23	91	51	0	165	0	25	205	11	0	241	817
10:15 AM	1	50	72	37	0	160	1	62	196	27	0	286	0	30	65	48	0	143	0	37	232	13	0	282	871
10:30 AM	0	33	72	26	0	131	0	42	224	26	0	292	0	36	68	46	0	150	0	35	234	11	0	280	853
10:45 AM	0	39	77	32	0	148	0	48	236	35	0	319	0	36	80	53	0	169	0	37	257	18	0	312	948
Hourly Total	1	158	299	120	0	578	1	194	855	119	0	1169	0	125	304	198	0	627	0	134	928	53	0	1115	3489
11:00 AM	0	32	64	31	0	127	0	74	240	40	0	354	0	31	99	55	0	185	1	43	311	15	0	370	1036
11:15 AM	0	53	68	47	0	168	1	74	242	28	0	345	0	29	71	55	0	155	2	33	271	14	0	320	988
11:30 AM	1	45	74	38	0	158	0	66	250	41	0	357	0	35	83	59	1	177	0	43	280	18	0	341	1033
11:45 AM	0	46	75	41	0	162	0	62	239	42	0	343	0	34	79	51	0	164	0	34	309	24	0	367	1036
Hourly Total	1	176	281	157	0	615	1	276	971	151	0	1399	0	129	332	220	1	681	3	153	1171	71	0	1398	4093
12:00 PM	0	55	78	41	0	174	0	75	261	41	0	377	0	34	89	62	0	185	0	47	319	18	0	384	1120
12:15 PM	0	57	70	36	0	163	0	65	252	44	0	361	0	35	84	55	0	174	0	38	275	22	0	335	1033
12:30 PM	0	51	73	33	0	157	0	65	302	37	0	404	0	32	88	48	1	168	3	36	266	15	0	320	1049
12:45 PM	0	54	69	48	0	171	0	62	257	47	0	366	0	34	109	58	0	201	0	49	263	16	0	328	1066
Hourly Total	0	217	290	158	0	665	0	267	1072	169	0	1508	0	135	370	223	1	728	3	170	1123	71	0	1367	4268
Grand Total	2	551	870	435	0	1858	2	737	2898	439	0	4076	0	389	1006	641	2	2036	6	457	3222	195	0	3880	11850
Approach %	0.1	29.7	46.8	23.4	-	-	0.0	18.1	71.1	10.8	-	-	0.0	19.1	49.4	31.5	-	-	0.2	11.8	83.0	5.0	-	-	-
Total %	0.0	4.6	7.3	3.7	-	15.7	0.0	6.2	24.5	3.7	-	34.4	0.0	3.3	8.5	5.4	-	17.2	0.1	3.9	27.2	1.6	-	32.7	-
Lights	2	549	850	430	-	1831	2	733	2886	437	-	4058	0	389	987	639	-	2015	6	454	3207	193	-	3860	11764
% Lights	100.0	99.6	97.7	98.9	-	98.5	100.0	99.5	99.6	99.5	-	99.6	-	100.0	98.1	99.7	-	99.0	100.0	99.3	99.5	99.0	-	99.5	99.3
Mediums	0	2	9	3	-	14	0	1	11	2	-	14	0	0	7	2	-	9	0	3	10	2	-	15	52
% Mediums	0.0	0.4	1.0	0.7	-	0.8	0.0	0.1	0.4	0.5	-	0.3	-	0.0	0.7	0.3	-	0.4	0.0	0.7	0.3	1.0	-	0.4	0.4
Articulated Trucks	0	0	11	2	-	13	0	3	1	0	-	4	0	0	12	0	-	12	0	0	5	0	-	5	34
% Articulated Trucks	0.0	0.0	1.3	0.5	-	0.7	0.0	0.4	0.0	0.0	-	0.1	-	0.0	1.2	0.0	-	0.6	0.0	0.0	0.2	0.0	-	0.1	0.3
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-

Main St & Northwest Hwy (US-14)
5423.955 - Crystal Lake Immanuel Lutheran Apartment Complex
6 AM - 9 AM, 3 PM - 6 PM
GHA Mio

Gewalt Hamilton Associates Inc.
625 Forest Edge Drive

Vernon Hills, Illinois, United States 60061
(847) 478-9700 poster@gha-engineers.com

Count Name: Main St & Northwest Hwy (US-14)
Site Code:
Start Date: 01/30/2024

Turning Movement Data

Start Time	Main St Southbound						US 14 Westbound						Main St Northbound						US 14 Eastbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
6:00 AM	0	10	23	3	0	36	0	9	44	3	0	56	0	1	23	7	0	31	0	5	106	0	0	111	234
6:15 AM	0	11	27	9	0	47	0	7	63	8	0	78	0	2	40	10	0	52	0	6	141	1	0	148	325
6:30 AM	0	6	35	9	0	50	0	8	62	16	0	86	0	0	54	11	0	65	0	5	180	2	0	187	388
6:45 AM	0	12	42	8	0	62	0	11	89	14	0	114	0	2	67	15	0	84	0	11	197	3	0	211	471
Hourly Total	0	39	127	29	0	195	0	35	258	41	0	334	0	5	184	43	0	232	0	27	624	6	0	657	1418
7:00 AM	0	14	53	9	0	76	0	8	104	15	0	127	0	3	60	13	0	76	0	9	170	2	0	181	460
7:15 AM	0	17	66	18	0	101	0	9	115	13	0	137	0	4	71	19	0	94	0	18	217	4	0	239	571
7:30 AM	0	28	64	19	0	111	0	19	131	8	0	158	0	2	72	12	0	86	0	14	227	19	0	260	615
7:45 AM	0	17	53	19	0	89	0	12	121	14	0	147	0	2	88	30	0	120	0	14	217	7	0	238	594
Hourly Total	0	76	236	65	0	377	0	48	471	50	0	569	0	11	291	74	0	376	0	55	831	32	0	918	2240
8:00 AM	0	18	69	12	0	99	0	18	122	10	0	150	0	4	67	22	0	93	0	17	218	6	0	241	583
8:15 AM	0	19	55	17	0	91	0	26	135	13	0	174	0	4	67	30	0	101	0	30	176	14	0	220	586
8:30 AM	0	21	61	15	0	97	0	23	168	11	0	202	0	2	85	34	0	121	0	20	200	8	0	228	648
8:45 AM	0	28	57	16	0	101	0	16	132	18	0	166	0	8	74	46	0	128	0	20	216	14	0	250	645
Hourly Total	0	86	242	60	0	388	0	83	557	52	0	692	0	18	293	132	0	443	0	87	810	42	0	939	2462
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	1	40	109	52	1	202	0	29	243	34	0	306	0	23	79	38	0	140	0	37	209	6	0	252	900
3:15 PM	0	24	88	37	1	149	1	49	265	36	0	351	0	35	72	34	0	141	0	34	221	16	0	271	912
3:30 PM	0	38	94	48	0	180	0	44	268	19	0	331	0	17	87	38	0	142	0	35	239	20	0	294	947
3:45 PM	0	23	69	35	0	127	0	50	281	31	0	362	0	30	90	39	0	159	1	35	256	13	0	305	953
Hourly Total	1	125	360	172	2	658	1	172	1057	120	0	1350	0	105	328	149	0	582	1	141	925	55	0	1122	3712
4:00 PM	0	39	116	53	0	208	0	54	252	31	0	337	0	40	86	51	0	177	0	40	216	13	0	269	991
4:15 PM	0	39	88	50	0	177	0	60	245	31	0	336	0	27	104	49	0	180	2	36	220	17	0	275	968
4:30 PM	0	27	100	37	0	164	0	46	278	25	0	349	0	31	84	38	0	153	0	31	262	12	0	305	971
4:45 PM	0	24	82	34	0	140	0	56	263	33	0	352	1	22	116	48	0	187	0	42	249	13	0	304	983
Hourly Total	0	129	386	174	0	689	0	216	1038	120	0	1374	1	120	390	186	0	697	2	149	947	55	0	1153	3913
5:00 PM	0	32	125	47	1	204	0	50	318	22	0	390	0	48	85	40	0	173	0	30	222	9	0	261	1028
5:15 PM	0	43	130	38	0	211	0	60	262	24	0	346	0	29	95	37	0	161	0	28	247	16	0	291	1009
5:30 PM	0	20	75	27	1	122	0	48	261	20	0	329	0	18	76	31	0	125	0	33	202	12	0	247	823
5:45 PM	0	29	69	32	0	130	0	58	267	34	0	359	0	18	74	41	0	133	0	21	215	11	0	247	869
Hourly Total	0	124	399	144	2	667	0	216	1108	100	0	1424	0	113	330	149	0	592	0	112	886	48	0	1046	3729
Grand Total	1	579	1750	644	4	2974	1	770	4489	483	0	5743	1	372	1816	733	0	2922	3	571	5023	238	0	5835	17474
Approach %	0.0	19.5	58.8	21.7	-	-	0.0	13.4	78.2	8.4	-	-	0.0	12.7	62.1	25.1	-	-	0.1	9.8	86.1	4.1	-	-	-
Total %	0.0	3.3	10.0	3.7	-	17.0	0.0	4.4	25.7	2.8	-	32.9	0.0	2.1	10.4	4.2	-	16.7	0.0	3.3	28.7	1.4	-	33.4	-
Lights	1	569	1713	626	-	2909	1	751	4396	467	-	5615	1	371	1786	718	-	2876	3	553	4924	229	-	5709	17109
% Lights	100.0	98.3	97.9	97.2	-	97.8	100.0	97.5	97.9	96.7	-	97.8	100.0	99.7	98.3	98.0	-	98.4	100.0	96.8	98.0	96.2	-	97.8	97.9
Mediums	0	2	30	16	-	48	0	14	71	7	-	92	0	1	26	12	-	39	0	17	68	8	-	93	272
% Mediums	0.0	0.3	1.7	2.5	-	1.6	0.0	1.8	1.6	1.4	-	1.6	0.0	0.3	1.4	1.6	-	1.3	0.0	3.0	1.4	3.4	-	1.6	1.6

Articulated Trucks	0	8	7	2	-	17	0	5	22	9	-	36	0	0	4	3	-	7	0	1	31	1	-	33	93
% Articulated Trucks	0.0	1.4	0.4	0.3	-	0.6	0.0	0.6	0.5	1.9	-	0.6	0.0	0.0	0.2	0.4	-	0.2	0.0	0.2	0.6	0.4	-	0.6	0.5
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	4	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

US 14 at Teckler
5423.955 - Crystal Lake Immanuel Lutheran Apartment Complex
10 AM - 1 PM
GHA Mio

Gewalt Hamilton Associates Inc.
625 Forest Edge Drive

Vernon Hills, Illinois, United States 60061
(847) 478-9700 poster@gha-engineers.com

Count Name: US 14 at Teckler
Site Code:
Start Date: 01/27/2024

Turning Movement Data

Start Time	Teckler Southbound						US 14 Westbound						Teckler Northbound						US 14 Eastbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
10:00 AM	0	22	10	24	0	56	0	13	192	19	0	224	0	4	7	8	0	19	0	22	195	7	0	224	523
10:15 AM	0	32	8	39	0	79	0	11	202	27	0	240	0	7	9	10	0	26	0	16	226	4	0	246	591
10:30 AM	0	19	10	31	0	60	0	16	225	34	0	275	0	10	8	19	0	37	0	13	238	4	0	255	627
10:45 AM	0	28	11	33	0	72	0	18	197	32	0	247	0	2	14	14	0	30	0	31	236	8	0	275	624
Hourly Total	0	101	39	127	0	267	0	58	816	112	0	986	0	23	38	51	0	112	0	82	895	23	0	1000	2365
11:00 AM	0	45	14	41	0	100	0	19	237	25	0	281	0	7	12	14	0	33	0	25	285	8	0	318	732
11:15 AM	0	34	10	35	0	79	0	15	268	20	0	303	0	9	7	16	0	32	0	32	250	8	1	290	704
11:30 AM	0	34	10	24	0	68	0	19	270	22	0	311	0	9	10	22	0	41	0	21	285	7	0	313	733
11:45 AM	0	43	10	34	0	87	0	14	245	26	0	285	0	7	11	23	0	41	0	27	306	8	0	341	754
Hourly Total	0	156	44	134	0	334	0	67	1020	93	0	1180	0	32	40	75	0	147	0	105	1126	31	1	1262	2923
12:00 PM	0	35	10	43	0	88	0	16	263	28	0	307	0	10	11	22	0	43	0	26	315	5	0	346	784
12:15 PM	0	38	13	39	0	90	0	15	267	27	0	309	0	8	14	26	0	48	0	27	282	7	0	316	763
12:30 PM	0	31	13	36	0	80	0	25	272	37	0	334	0	10	11	13	1	34	0	25	256	11	0	292	740
12:45 PM	0	43	12	35	0	90	0	28	255	30	0	313	0	10	10	15	0	35	0	37	265	5	0	307	745
Hourly Total	0	147	48	153	0	348	0	84	1057	122	0	1263	0	38	46	76	1	160	0	115	1118	28	0	1261	3032
Grand Total	0	404	131	414	0	949	0	209	2893	327	0	3429	0	93	124	202	1	419	0	302	3139	82	1	3523	8320
Approach %	0.0	42.6	13.8	43.6	-	-	0.0	6.1	84.4	9.5	-	-	0.0	22.2	29.6	48.2	-	-	0.0	8.6	89.1	2.3	-	-	-
Total %	0.0	4.9	1.6	5.0	-	11.4	0.0	2.5	34.8	3.9	-	41.2	0.0	1.1	1.5	2.4	-	5.0	0.0	3.6	37.7	1.0	-	42.3	-
Lights	0	404	130	410	-	944	0	206	2880	325	-	3411	0	92	123	200	-	415	0	302	3123	81	-	3506	8276
% Lights	-	100.0	99.2	99.0	-	99.5	-	98.6	99.6	99.4	-	99.5	-	98.9	99.2	99.0	-	99.0	-	100.0	99.5	98.8	-	99.5	99.5
Mediums	0	0	1	4	-	5	0	3	11	1	-	15	0	0	1	2	-	3	0	0	13	0	-	13	36
% Mediums	-	0.0	0.8	1.0	-	0.5	-	1.4	0.4	0.3	-	0.4	-	0.0	0.8	1.0	-	0.7	-	0.0	0.4	0.0	-	0.4	0.4
Articulated Trucks	0	0	0	0	-	0	0	0	2	1	-	3	0	1	0	0	-	1	0	0	3	1	-	4	8
% Articulated Trucks	-	0.0	0.0	0.0	-	0.0	-	0.0	0.1	0.3	-	0.1	-	1.1	0.0	0.0	-	0.2	-	0.0	0.1	1.2	-	0.1	0.1
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-

US 14 at Teckler
5423.955 - Crystal Lake Immanuel Lutheran Apartment Complex
6 AM - 9 AM, 3 PM - 6 PM
GHA Mio

Gewalt Hamilton Associates Inc.
625 Forest Edge Drive

Vernon Hills, Illinois, United States 60061
(847) 478-9700 poster@gha-engineers.com

Count Name: US 14 at Teckler
Site Code:
Start Date: 01/30/2024

Turning Movement Data

Start Time	Teckler Southbound						US 14 Westbound						Teckler Northbound						US 14 Eastbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
6:00 AM	0	0	1	3	0	4	0	1	43	5	0	49	0	0	1	12	0	13	0	1	91	1	0	93	159
6:15 AM	0	3	2	1	0	6	0	9	54	2	0	65	0	1	2	18	0	21	0	2	130	0	1	132	224
6:30 AM	0	3	2	2	0	7	0	5	66	1	0	72	0	4	2	18	0	24	0	3	166	3	0	172	275
6:45 AM	0	2	0	1	0	3	0	11	73	2	0	86	0	1	3	13	0	17	0	2	193	4	0	199	305
Hourly Total	0	8	5	7	0	20	0	26	236	10	0	272	0	6	8	61	0	75	0	8	580	8	1	596	963
7:00 AM	0	4	0	0	0	4	0	18	99	6	0	123	0	1	1	14	0	16	0	7	162	7	0	176	319
7:15 AM	0	4	1	3	0	8	0	9	99	19	0	127	0	3	4	17	0	24	0	9	213	3	0	225	384
7:30 AM	0	26	16	30	0	72	0	15	112	15	0	142	0	2	10	19	0	31	0	40	205	4	0	249	494
7:45 AM	0	15	3	15	0	33	0	20	122	9	0	151	0	2	5	16	0	23	0	10	201	3	0	214	421
Hourly Total	0	49	20	48	0	117	0	62	432	49	0	543	0	8	20	66	0	94	0	66	781	17	0	864	1618
8:00 AM	0	9	4	6	0	19	0	13	118	7	0	138	0	6	1	11	0	18	0	7	216	2	0	225	400
8:15 AM	0	9	7	6	0	22	0	25	132	5	0	162	0	7	9	18	0	34	0	9	172	2	0	183	401
8:30 AM	0	7	4	8	0	19	0	15	163	10	0	188	0	4	3	20	0	27	0	14	188	6	0	208	442
8:45 AM	0	5	3	9	0	17	0	12	136	13	0	161	0	2	5	18	0	25	0	16	227	3	0	246	449
Hourly Total	0	30	18	29	0	77	0	65	549	35	0	649	0	19	18	67	0	104	0	46	803	13	0	862	1692
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	0	20	17	23	2	60	0	21	276	28	0	325	0	6	8	16	0	30	0	12	229	4	2	245	660
3:15 PM	0	27	15	31	0	73	0	27	283	15	0	325	0	9	8	8	0	25	0	16	229	12	0	257	680
3:30 PM	0	28	12	32	0	72	0	22	252	27	0	301	0	6	9	28	0	43	0	18	213	7	0	238	654
3:45 PM	0	29	9	32	0	70	0	21	297	26	0	344	0	9	10	32	0	51	0	14	232	5	0	251	716
Hourly Total	0	104	53	118	2	275	0	91	1108	96	0	1295	0	30	35	84	0	149	0	60	903	28	2	991	2710
4:00 PM	0	20	15	24	0	59	0	19	294	35	0	348	0	9	6	24	0	39	0	16	239	7	1	262	708
4:15 PM	0	25	18	33	0	76	1	25	259	24	0	309	0	7	8	29	0	44	0	26	219	6	0	251	680
4:30 PM	0	26	17	33	0	76	0	20	295	18	0	333	0	15	10	30	0	55	0	20	236	6	0	262	726
4:45 PM	0	26	8	37	0	71	0	16	261	24	0	301	0	9	6	26	0	41	0	15	232	5	0	252	665
Hourly Total	0	97	58	127	0	282	1	80	1109	101	0	1291	0	40	30	109	0	179	0	77	926	24	1	1027	2779
5:00 PM	0	28	13	30	0	71	0	28	320	22	0	370	0	5	6	20	0	31	0	21	226	6	0	253	725
5:15 PM	0	22	7	36	0	65	0	27	322	26	0	375	0	6	15	16	0	37	0	17	247	10	0	274	751
5:30 PM	0	26	11	34	0	71	0	14	286	20	0	320	0	5	9	28	0	42	0	16	187	7	0	210	643
5:45 PM	0	29	15	26	0	70	0	15	255	19	0	289	0	11	16	20	0	47	0	7	182	8	0	197	603
Hourly Total	0	105	46	126	0	277	0	84	1183	87	0	1354	0	27	46	84	0	157	0	61	842	31	0	934	2722
Grand Total	0	393	200	455	2	1048	1	408	4617	378	0	5404	0	130	157	471	0	758	0	318	4835	121	4	5274	12484
Approach %	0.0	37.5	19.1	43.4	-	-	0.0	7.5	85.4	7.0	-	-	0.0	17.2	20.7	62.1	-	-	0.0	6.0	91.7	2.3	-	-	-
Total %	0.0	3.1	1.6	3.6	-	8.4	0.0	3.3	37.0	3.0	-	43.3	0.0	1.0	1.3	3.8	-	6.1	0.0	2.5	38.7	1.0	-	42.2	-
Lights	0	386	197	445	-	1028	1	395	4530	371	-	5297	0	127	154	459	-	740	0	308	4737	119	-	5164	12229
% Lights	-	98.2	98.5	97.8	-	98.1	100.0	96.8	98.1	98.1	-	98.0	-	97.7	98.1	97.5	-	97.6	-	96.9	98.0	98.3	-	97.9	98.0
Mediums	0	5	3	7	-	15	0	11	62	5	-	78	0	2	2	11	-	15	0	7	76	2	-	85	193
% Mediums	-	1.3	1.5	1.5	-	1.4	0.0	2.7	1.3	1.3	-	1.4	-	1.5	1.3	2.3	-	2.0	-	2.2	1.6	1.7	-	1.6	1.5

Articulated Trucks	0	2	0	3	-	5	0	2	25	2	-	29	0	1	1	1	-	3	0	3	22	0	-	25	62
% Articulated Trucks	-	0.5	0.0	0.7	-	0.5	0.0	0.5	0.5	0.5	-	0.5	-	0.8	0.6	0.2	-	0.4	-	0.9	0.5	0.0	-	0.5	0.5
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	4	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

Main at Walkup
5423.955 - Crystal Lake Immanuel Lutheran Apartment Complex
6 AM - 9 AM, 3 PM - 6 PM
GHA Mio

Gewalt Hamilton Associates Inc.
625 Forest Edge Drive

Vernon Hills, Illinois, United States 60061
(847) 478-9700 poster@gha-engineers.com

Count Name: Main at Walkup
Site Code:
Start Date: 01/30/2024

Turning Movement Data

Start Time	Main St Southbound						Walkup Westbound						Main St Northbound						Walkup Eastbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
6:00 AM	0	1	41	3	0	45	0	0	0	0	0	0	0	0	33	1	0	34	0	2	0	1	0	3	82
6:15 AM	0	0	46	5	0	51	0	1	0	0	0	1	0	3	54	0	1	57	0	1	0	2	1	3	112
6:30 AM	0	0	47	6	0	53	0	1	0	0	0	1	0	0	76	1	0	77	0	0	0	0	0	0	131
6:45 AM	0	0	70	5	0	75	0	0	0	0	0	0	0	3	87	1	0	91	0	4	0	0	0	4	170
Hourly Total	0	1	204	19	0	224	0	2	0	0	0	2	0	6	250	3	1	259	0	7	0	3	1	10	495
7:00 AM	0	3	87	10	0	100	0	1	0	1	0	2	0	0	84	1	0	85	0	2	0	2	1	4	191
7:15 AM	0	1	109	23	0	133	0	1	0	1	0	2	0	2	107	1	0	110	0	5	0	1	0	6	251
7:30 AM	0	2	130	33	0	165	0	2	1	1	0	4	0	5	96	0	0	101	0	15	0	6	1	21	291
7:45 AM	0	5	93	13	0	111	0	0	0	2	0	2	0	7	105	4	0	116	0	16	1	5	0	22	251
Hourly Total	0	11	419	79	0	509	0	4	1	5	0	10	0	14	392	6	0	412	0	38	1	14	2	53	984
8:00 AM	0	2	91	8	0	101	0	0	0	1	0	1	0	4	89	2	0	95	0	7	0	3	0	10	207
8:15 AM	0	2	89	12	0	103	0	0	0	0	0	0	0	1	106	5	0	112	0	6	1	2	0	9	224
8:30 AM	0	4	115	8	0	127	0	4	0	4	0	8	0	6	109	2	0	117	0	5	0	2	0	7	259
8:45 AM	0	5	92	12	0	109	0	2	1	2	0	5	0	4	114	4	0	122	0	12	0	4	0	16	252
Hourly Total	0	13	387	40	0	440	0	6	1	7	0	14	0	15	418	13	0	446	0	30	1	11	0	42	942
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	0	2	177	29	0	208	0	6	4	4	0	14	0	9	146	5	0	160	0	22	3	10	1	35	417
3:15 PM	0	4	149	24	0	177	0	7	3	5	0	15	0	9	141	6	1	156	0	28	5	9	1	42	390
3:30 PM	0	1	159	31	0	191	0	5	1	1	0	7	0	9	133	2	0	144	0	37	6	18	1	61	403
3:45 PM	0	3	137	29	0	169	0	4	3	6	0	13	0	11	156	2	0	169	0	23	0	5	0	28	379
Hourly Total	0	10	622	113	0	745	0	22	11	16	0	49	0	38	576	15	1	629	0	110	14	42	3	166	1589
4:00 PM	0	1	179	34	0	214	0	10	5	5	0	20	0	11	146	4	1	161	0	29	2	14	0	45	440
4:15 PM	0	3	165	45	0	213	0	4	0	4	0	8	0	5	162	5	0	172	0	24	1	10	1	35	428
4:30 PM	0	3	156	28	0	187	0	6	3	9	0	18	0	3	142	3	0	148	0	39	2	15	0	56	409
4:45 PM	0	1	148	32	1	181	0	10	1	2	0	13	0	9	187	5	0	201	0	19	1	8	2	28	423
Hourly Total	0	8	648	139	1	795	0	30	9	20	0	59	0	28	637	17	1	682	0	111	6	47	3	164	1700
5:00 PM	0	4	177	34	0	215	0	8	4	5	0	17	0	5	130	1	0	136	0	36	4	15	1	55	423
5:15 PM	0	4	173	38	1	215	0	9	2	8	0	19	0	8	142	4	0	154	0	38	1	15	1	54	442
5:30 PM	0	2	99	22	0	123	0	5	0	8	0	13	0	9	132	1	1	142	0	34	1	10	0	45	323
5:45 PM	0	3	116	20	0	139	0	3	3	3	0	9	0	5	126	2	0	133	0	22	2	11	1	35	316
Hourly Total	0	13	565	114	1	692	0	25	9	24	0	58	0	27	530	8	1	565	0	130	8	51	3	189	1504
Grand Total	0	56	2845	504	2	3405	0	89	31	72	0	192	0	128	2803	62	4	2993	0	426	30	168	12	624	7214
Approach %	0.0	1.6	83.6	14.8	-	-	0.0	46.4	16.1	37.5	-	-	0.0	4.3	93.7	2.1	-	-	0.0	68.3	4.8	26.9	-	-	-
Total %	0.0	0.8	39.4	7.0	-	47.2	0.0	1.2	0.4	1.0	-	2.7	0.0	1.8	38.9	0.9	-	41.5	0.0	5.9	0.4	2.3	-	8.6	-
Lights	0	55	2788	498	-	3341	0	87	30	71	-	188	0	123	2750	59	-	2932	0	423	29	162	-	614	7075
% Lights	-	98.2	98.0	98.8	-	98.1	-	97.8	96.8	98.6	-	97.9	-	96.1	98.1	95.2	-	98.0	-	99.3	96.7	96.4	-	98.4	98.1
Mediums	0	1	43	3	-	47	0	2	1	1	-	4	0	4	42	3	-	49	0	3	1	4	-	8	108
% Mediums	-	1.8	1.5	0.6	-	1.4	-	2.2	3.2	1.4	-	2.1	-	3.1	1.5	4.8	-	1.6	-	0.7	3.3	2.4	-	1.3	1.5

Articulated Trucks	0	0	14	3	-	17	0	0	0	0	-	0	0	1	11	0	-	12	0	0	0	2	-	2	31
% Articulated Trucks	-	0.0	0.5	0.6	-	0.5	-	0.0	0.0	0.0	-	0.0	-	0.8	0.4	0.0	-	0.4	-	0.0	0.0	1.2	-	0.3	0.4
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	4	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	33.3	-	-
Pedestrians	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	4	-	-	-	-	-	8	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	66.7	-	-

Main at Walkup
5423.955 - Crystal Lake Immanuel Lutheran Apartment Complex
10 AM - 1 PM
GHA Mio

Gewalt Hamilton Associates Inc.
625 Forest Edge Drive

Vernon Hills, Illinois, United States 60061
(847) 478-9700 poster@gha-engineers.com

Count Name: Main St at Walkup Ave
Site Code:
Start Date: 01/27/2024
Page No: 1

Turning Movement Data

Start Time	Main St Southbound						Walkup Westbound						Main St Northbound						Walkup Eastbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
10:00 AM	0	7	139	20	1	166	0	5	3	4	0	12	0	8	133	2	0	143	0	24	4	13	0	41	362
10:15 AM	0	8	148	12	0	168	0	12	3	7	0	22	1	12	127	2	1	142	0	17	3	13	2	33	365
10:30 AM	0	6	123	34	0	163	0	11	2	3	0	16	0	8	118	3	0	129	0	25	1	11	0	37	345
10:45 AM	0	10	153	33	0	196	0	3	3	3	0	9	0	11	126	3	0	140	0	22	3	7	0	32	377
Hourly Total	0	31	563	99	1	693	0	31	11	17	0	59	1	39	504	10	1	554	0	88	11	44	2	143	1449
11:00 AM	0	8	129	33	0	170	0	7	2	3	0	12	0	15	168	2	0	185	0	40	6	11	1	57	424
11:15 AM	0	7	148	38	0	193	0	10	4	7	0	21	0	10	122	6	0	138	0	20	4	22	0	46	398
11:30 AM	0	3	141	29	0	173	0	9	2	4	0	15	1	10	153	2	1	166	0	41	4	19	3	64	418
11:45 AM	0	5	152	39	0	196	0	6	2	9	0	17	0	12	146	3	1	161	0	41	1	9	1	51	425
Hourly Total	0	23	570	139	0	732	0	32	10	23	0	65	1	47	589	13	2	650	0	142	15	61	5	218	1665
12:00 PM	0	5	162	43	0	210	0	8	0	6	0	14	0	16	153	10	0	179	0	33	7	17	0	57	460
12:15 PM	0	10	135	32	0	177	0	9	3	10	0	22	0	15	138	6	1	159	0	30	1	19	1	50	408
12:30 PM	0	8	136	37	0	181	0	13	5	8	0	26	0	16	150	10	1	176	0	26	3	20	2	49	432
12:45 PM	0	5	152	36	1	193	0	15	6	4	0	25	1	14	143	4	0	162	0	38	3	19	0	60	440
Hourly Total	0	28	585	148	1	761	0	45	14	28	0	87	1	61	584	30	2	676	0	127	14	75	3	216	1740
Grand Total	0	82	1718	386	2	2186	0	108	35	68	0	211	3	147	1677	53	5	1880	0	357	40	180	10	577	4854
Approach %	0.0	3.8	78.6	17.7	-	-	0.0	51.2	16.6	32.2	-	-	0.2	7.8	89.2	2.8	-	-	0.0	61.9	6.9	31.2	-	-	-
Total %	0.0	1.7	35.4	8.0	-	45.0	0.0	2.2	0.7	1.4	-	4.3	0.1	3.0	34.5	1.1	-	38.7	0.0	7.4	0.8	3.7	-	11.9	-
Lights	0	82	1698	385	-	2165	0	106	35	67	-	208	3	145	1658	52	-	1858	0	357	40	177	-	574	4805
% Lights	-	100.0	98.8	99.7	-	99.0	-	98.1	100.0	98.5	-	98.6	100.0	98.6	98.9	98.1	-	98.8	-	100.0	100.0	98.3	-	99.5	99.0
Mediums	0	0	5	1	-	6	0	1	0	1	-	2	0	2	10	1	-	13	0	0	0	2	-	2	23
% Mediums	-	0.0	0.3	0.3	-	0.3	-	0.9	0.0	1.5	-	0.9	0.0	1.4	0.6	1.9	-	0.7	-	0.0	0.0	1.1	-	0.3	0.5
Articulated Trucks	0	0	15	0	-	15	0	1	0	0	-	1	0	0	9	0	-	9	0	0	0	1	-	1	26
% Articulated Trucks	-	0.0	0.9	0.0	-	0.7	-	0.9	0.0	0.0	-	0.5	0.0	0.0	0.5	0.0	-	0.5	-	0.0	0.0	0.6	-	0.2	0.5
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	1	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	20.0	-	-	-	-	-	10.0	-	-
Pedestrians	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	4	-	-	-	-	-	9	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	80.0	-	-	-	-	-	90.0	-	-

Teckler at Pathway
5423.955 - Crystal Lake Immanuel Lutheran Apartment Complex
10 AM - 1 PM
GHA Mio

Gewalt Hamilton Associates Inc.
625 Forest Edge Drive

Vernon Hills, Illinois, United States 60061
(847) 478-9700 poster@gha-engineers.com

Count Name: Teckler at Pathway
Site Code:
Start Date: 01/27/2024
Page No: 1

Turning Movement Data

Start Time	Pathway Southbound					Teckler Westbound					Teckler Eastbound					
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	Int. Total
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
10:15 AM	0	0	2	0	2	0	1	0	0	1	0	1	1	0	2	5
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4	4
10:45 AM	0	0	0	0	0	0	1	1	0	2	0	6	2	0	8	10
Hourly Total	0	0	2	0	2	0	2	1	0	3	0	13	3	0	16	21
11:00 AM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
11:30 AM	0	0	0	0	0	0	1	0	0	1	0	1	1	0	2	3
11:45 AM	0	0	1	0	1	0	0	0	0	0	1	1	0	0	2	3
Hourly Total	0	0	2	0	2	0	1	0	0	1	1	4	1	0	6	9
12:00 PM	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1	2
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
Hourly Total	0	0	1	0	1	0	0	0	0	0	0	5	0	0	5	6
Grand Total	0	0	5	0	5	0	3	1	0	4	1	22	4	0	27	36
Approach %	0.0	0.0	100.0	-	-	0.0	75.0	25.0	-	-	3.7	81.5	14.8	-	-	-
Total %	0.0	0.0	13.9	-	13.9	0.0	8.3	2.8	-	11.1	2.8	61.1	11.1	-	75.0	-
Lights	0	0	5	-	5	0	3	1	-	4	1	22	4	-	27	36
% Lights	-	-	100.0	-	100.0	-	100.0	100.0	-	100.0	100.0	100.0	100.0	-	100.0	100.0
Mediums	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Mediums	-	-	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Articulated Trucks	-	-	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Teckler at Pathway
5423.955 - Crystal Lake Immanuel Lutheran
Apartment Complex
10 AM - 1 PM
GHA Mio

Gewalt Hamilton Associates Inc.
625 Forest Edge Drive

Vernon Hills, Illinois, United States 60061
(847) 478-9700 poster@gha-engineers.com

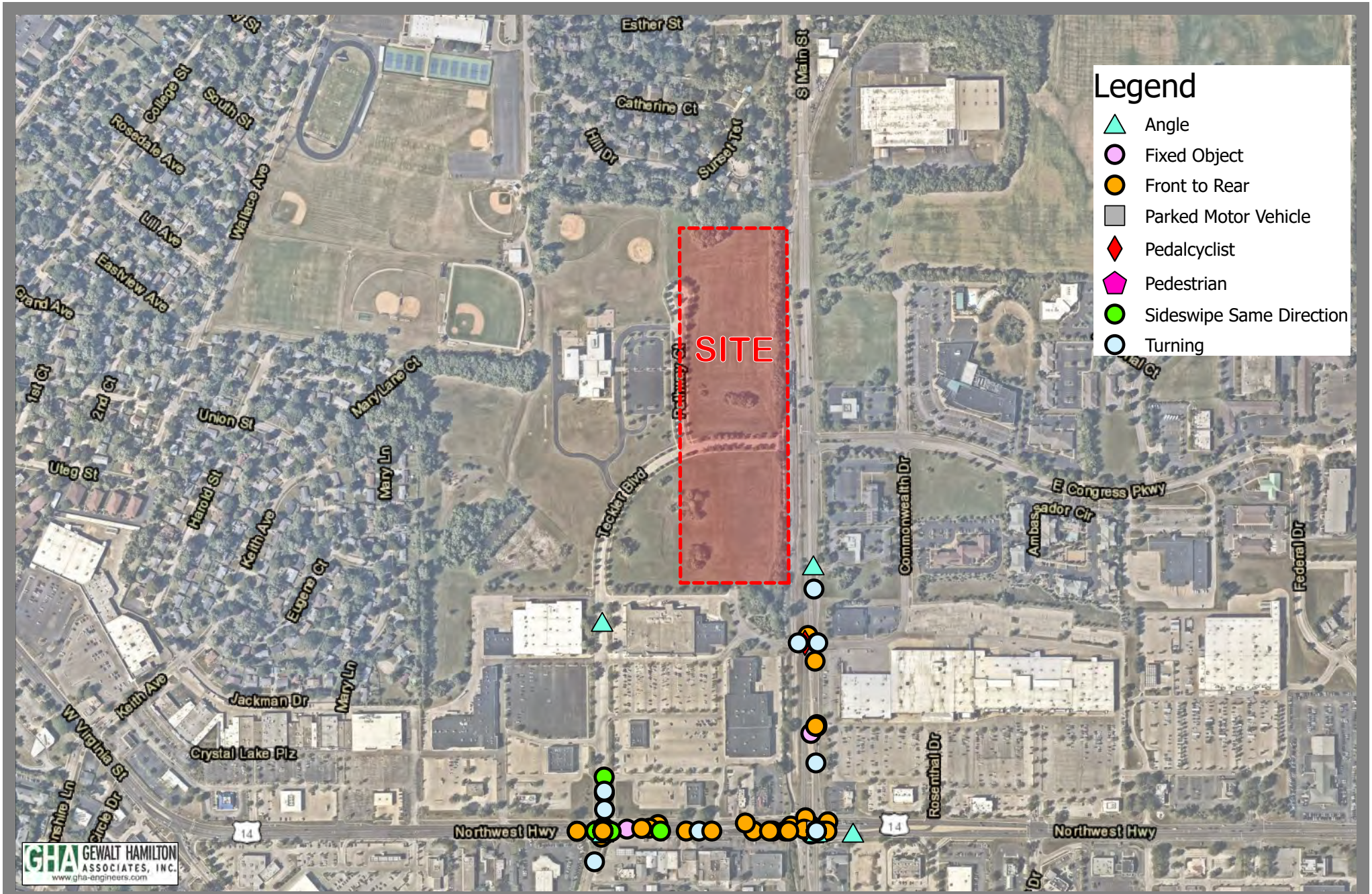
Count Name: Teckler at Pathway
Site Code:
Start Date: 01/30/2024
Page No: 1

Turning Movement Data

Start Time	Pathway Southbound					Teckler Westbound					Teckler Eastbound					Int. Total
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	17	0	0	17	17
7:30 AM	0	0	0	0	0	0	0	1	0	1	0	67	1	0	68	69
7:45 AM	0	0	1	0	1	0	0	0	0	0	0	7	0	0	7	8
Hourly Total	0	0	1	0	1	0	0	1	0	1	0	91	1	0	92	94
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	5
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	7	0	0	7	7
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4	4
8:45 AM	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1	2
Hourly Total	0	0	1	0	1	0	0	0	0	0	0	17	0	0	17	18
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	3
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
3:45 PM	0	0	0	0	0	0	1	0	0	1	0	2	1	0	3	4
Hourly Total	0	0	0	0	0	0	1	0	0	1	0	7	1	0	8	9
4:00 PM	0	0	0	0	0	0	1	0	0	1	0	1	1	0	2	3
4:15 PM	0	0	0	2	0	0	0	0	0	0	0	3	0	0	3	3
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
Hourly Total	0	0	0	2	0	0	1	0	0	1	0	8	1	0	9	10
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
5:15 PM	0	0	0	0	0	0	2	0	0	2	0	2	2	0	4	6
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	2	0	0	2	0	5	2	0	7	9
Grand Total	0	0	2	2	2	0	4	1	0	5	0	129	5	0	134	141
Approach %	0.0	0.0	100.0	-	-	0.0	80.0	20.0	-	-	0.0	96.3	3.7	-	-	-
Total %	0.0	0.0	1.4	-	1.4	0.0	2.8	0.7	-	3.5	0.0	91.5	3.5	-	95.0	-
Lights	0	0	1	-	1	0	4	1	-	5	0	120	5	-	125	131
% Lights	-	-	50.0	-	50.0	-	100.0	100.0	-	100.0	-	93.0	100.0	-	93.3	92.9
Mediums	0	0	1	-	1	0	0	0	-	0	0	9	0	-	9	10
% Mediums	-	-	50.0	-	50.0	-	0.0	0.0	-	0.0	-	7.0	0.0	-	6.7	7.1
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0

% Articulated Trucks	-	-	0.0	-	0.0	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	2	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-

APPENDIX C
Crash Map



N

1 inch = 840 Feet

Appendix C - IDOT Crash Data (2018-2022)

Proposed Apartment Complex
Crystal Lake, IL

Map Center: 88.31803°W 42.23068°N

APPENDIX D

CMAP Correspondence

Chicago Metropolitan Agency for Planning

433 West Van Buren Street, Suite 450
Chicago, IL 60607
cmap.illinois.gov | 312-454-0400

February 12, 2024

David Westergreen, E. I.
Traffic Engineer
Gewalt Hamilton Associates
625 Forest Edge Drive
Vernon Hills, IL 60061

Subject: Northwest Highway (US 14) - Main Street - Teckler Boulevard
IDOT

Dear Mr. Westergreen:

In response to a request made on your behalf and dated February 9, 2024, we have developed year 2050 average daily traffic (ADT) projections for the subject location.

ROAD SEGMENT	Current ADT	Year 2050 ADT
NW Hwy (US 14) east of Main St	26,000	34,300
NW Hwy (US 14) west of Main St	26,000	34,900
Main St north of NW Hwy (US 14)	14,200	16,900
Main St south of NW Hwy (US 14)	14,200	16,300
Teckler Blvd north of Walkup Ave	575	660
Teckler between Walkup Ave and US 14	1,650	1,900
Teckler south of US 14	1,650	1,900

Traffic projections are developed using existing ADT data provided in the request letter and the results from the December 2023 CMAP Travel Demand Analysis. The regional travel model uses CMAP 2050 socioeconomic projections and assumes the implementation of the ON TO 2050 Comprehensive Regional Plan for the Northeastern Illinois area. The provision of this data in support of your request does not constitute a CMAP endorsement of the proposed development or any subsequent developments.

If you have any questions, please call me at (312) 386-8806 or email me at jrodriguez@cmap.illinois.gov



Jose Rodriguez, PTP, AICP
Senior Planner, Research & Analysis

cc: Rios (IDOT)
S:\AdminGroups\ResearchAnalysis\2024_TrafficForecasts\CrystalLake\mc-04-24\mc-04-24.docx

APPENDIX E

Site Plan

2024.01.17



LOTS 2 & 3 (NORTH)			
SITE AREA	522665	11.999 AC	
PROPOSED IMPERVIOUS AREA	281455	6.461 AC	53.8 %
PROPOSED GREENSPACE AREA	241210	5.537 AC	46.2 %

LOT 1 (SOUTH)			
SITE AREA	517339	11.876 AC	
PROPOSED IMPERVIOUS AREA	290671	6.673 AC	56.2 %
PROPOSED GREENSPACE AREA	226667.79	5.204 AC	43.8 %

R.O.W.			
SITE AREA (DISTURBED)	37965	0.872 AC	
EXISTING IMPERVIOUS AREA	21177	0.486 AC	
PROPOSED IMPERVIOUS AREA	16102	0.370 AC	42.4 %
PROPOSED GREENSPACE AREA	21863	0.502 AC	57.6 %

SITE INFORMATION			
SITE AREA	1077969	24.747 AC	
SITE DISTURBED AREA	1077969	24.747 AC	
EXISTING IMPERVIOUS AREA	21177	0.486 AC	
PROPOSED IMPERVIOUS AREA	593303	13.620 AC	55.0 %
PROPOSED GREENSPACE AREA	484665	11.126 AC	45.0 %

LEGEND:

- 5" THICK CONCRETE WALK
- CONCRETE PAVEMENT
- ASPHALT SURFACE
- HEAVY-DUTY ASPHALT SURFACE
- GREEN SPACE
- CURB & GUTTER (ACCEPT)
- CURB & GUTTER (REJECT)

GENERAL NOTES:

1. THE UNDERGROUND UTILITY INFORMATION SHOWN ON THIS DRAWING IS BASED ON FIELD LOCATIONS AND/OR RECORDS FURNISHED BY MUNICIPALITIES AND UTILITY COMPANIES. THE LOCATION AND ACCURACY OF WHICH CANNOT BE GUARANTEED. THERE MAY BE ADDITIONAL UNDERGROUND UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.
2. VERIFY ACTUAL LOCATIONS AND INVERTS IN THE FIELD. ANY POTENTIAL ERRORS, OMISSIONS, OR DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.
3. WORK TO BE COMPLETED IS INDICATED IN BOLD TYPE LINES AND EXISTING CONDITIONS ARE INDICATED BY LIGHT TYPE LINES.
4. ELECTRONIC CIVIL FILES ARE AVAILABLE UPON WRITTEN REQUEST. DO NOT USE ELECTRONIC CIVIL FILES TO LAYOUT FOUNDATIONS, COLUMN LINES, LIGHT POLES, OR OTHER NON CIVIL SITE WORK. REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONS OF BUILDING AND ARCHITECTURAL FEATURES.
5. DIMENSIONS ARE FROM FACE OF CURB OR EDGE OF PAVEMENT.
6. WORK WITHIN THE PUBLIC RIGHT OF WAY, INCLUDING BUT NOT LIMITED TO DRIVEWAY OPENINGS, SIDEWALK AND RAMPS, PAVING, AND CURB AND GUTTER SHALL BE COMPLETED PER MUNICIPAL AND/OR COUNTY REQUIREMENTS AND STANDARDS.
7. EARTHWORK SHALL BE IN ACCORDANCE WITH GEOTECHNICAL ENGINEER'S RECOMMENDATIONS.

TO OBTAIN LOCATIONS OF PARTICIPANTS' UNDERGROUND FACILITIES BEFORE YOU DIG IN WISCONSIN

CALL DIGGERS HOTLINE
1-800-242-8511
TOLL FREE

WIS STATUTE 182.0175(1974) REQUIRES MIN. 3 WORK DAYS NOTICE BEFORE YOU EXCAVATE

MILW. AREA 259-1181

THE UNDERGROUND UTILITY INFORMATION SHOWN ON THIS MAP IS BASED ON FIELD MARKINGS AND INFORMATION FURNISHED BY UTILITY COMPANIES AND THE LOCAL MUNICIPALITY. WHILE THIS INFORMATION IS BELIEVED TO BE RELIABLE, ITS ACCURACY AND COMPLETENESS CANNOT BE GUARANTEED.

THE SIGMA GROUP
Single Source. Sound Solutions.
www.thesigmagroup.com
1300 West Canal Street
Milwaukee, WI 53233
Phone: 414-643-4200
Fax: 414-643-4210

GRAPHIC SCALE
0 100 200

IMMANUAL LUTHERAN RESIDENTIAL
CRYSTAL LAKE, IL

OVERALL SITE PLAN

PRELIMINARY NOT FOR CONSTRUCTION

ISSUANCE	DATE

NO.	REVISION	DATE

PROJECT NO:	22360
DESIGN DATE:	----
PLOT DATE:	2024.01.17
DRAWN BY:	----
CHECKED BY:	----
APPROVED BY:	----
SHEET NO:	C100

MGARNER
C100
22360

i:\three leaf development\22360 - crystal lake residential\060 CAD\030_Production Sheets\100_Civil\C100 Site Plan.dwg

APPENDIX F

ITE Trip Generation Excerpts

Land Use: 220
Multifamily Housing (Low-Rise)

Description

Low-rise multifamily housing includes apartments, townhouses, and condominiums located within the same building with at least three other dwelling units and that have two or three floors (levels). Various configurations fit this description, including walkup apartment, mansion apartment, and stacked townhouse.

- A walkup apartment typically is two or three floors in height with dwelling units that are accessed by a single or multiple entrances with stairways and hallways.
- A mansion apartment is a single structure that contains several apartments within what appears to be a single-family dwelling unit.
- A fourplex is a single two-story structure with two matching dwelling units on the ground and second floors. Access to the individual units is typically internal to the structure and provided through a central entry and stairway.
- A stacked townhouse is designed to match the external appearance of a townhouse. But, unlike a townhouse dwelling unit that only shares walls with an adjoining unit, the stacked townhouse units share both floors and walls. Access to the individual units is typically internal to the structure and provided through a central entry and stairway.

Multifamily housing (mid-rise) (Land Use 221), multifamily housing (high-rise) (Land Use 222), affordable housing (Land Use 223), and off-campus student apartment (low-rise) (Land Use 225) are related land uses.

Land Use Subcategory

Data are presented for two subcategories for this land use: (1) not close to rail transit and (2) close to rail transit. A site is considered close to rail transit if the walking distance between the residential site entrance and the closest rail transit station entrance is ½ mile or less.

Additional Data

For the three sites for which both the number of residents and the number of occupied dwelling units were available, there were an average of 2.72 residents per occupied dwelling unit.

For the two sites for which the numbers of both total dwelling units and occupied dwelling units were available, an average of 96.2 percent of the total dwelling units were occupied.

The technical appendices provide supporting information on time-of-day distributions for this land use. The appendices can be accessed through either the ITETripGen web app or the trip

generation resource page on the ITE website (https://www.ite.org/technical-resources/topics/trip-and-parking-generation/).

For the three sites for which data were provided for both occupied dwelling units and residents, there was an average of 2.72 residents per occupied dwelling unit.

It is expected that the number of bedrooms and number of residents are likely correlated to the trips generated by a residential site. To assist in future analysis, trip generation studies of all multifamily housing should attempt to obtain information on occupancy rate and on the mix of residential unit sizes (i.e., number of units by number of bedrooms at the site complex).

The sites were surveyed in the 1980s, the 1990s, the 2000s, the 2010s, and the 2020s in British Columbia (CAN), California, Delaware, Florida, Georgia, Illinois, Indiana, Maine, Maryland, Massachusetts, Minnesota, New Jersey, Ontario (CAN), Oregon, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Utah, and Washington.

Source Numbers

188, 204, 237, 300, 305, 306, 320, 321, 357, 390, 412, 525, 530, 579, 583, 638, 864, 866, 896, 901, 903, 904, 936, 939, 944, 946, 947, 948, 963, 964, 966, 967, 1012, 1013, 1014, 1036, 1047, 1056, 1071, 1076

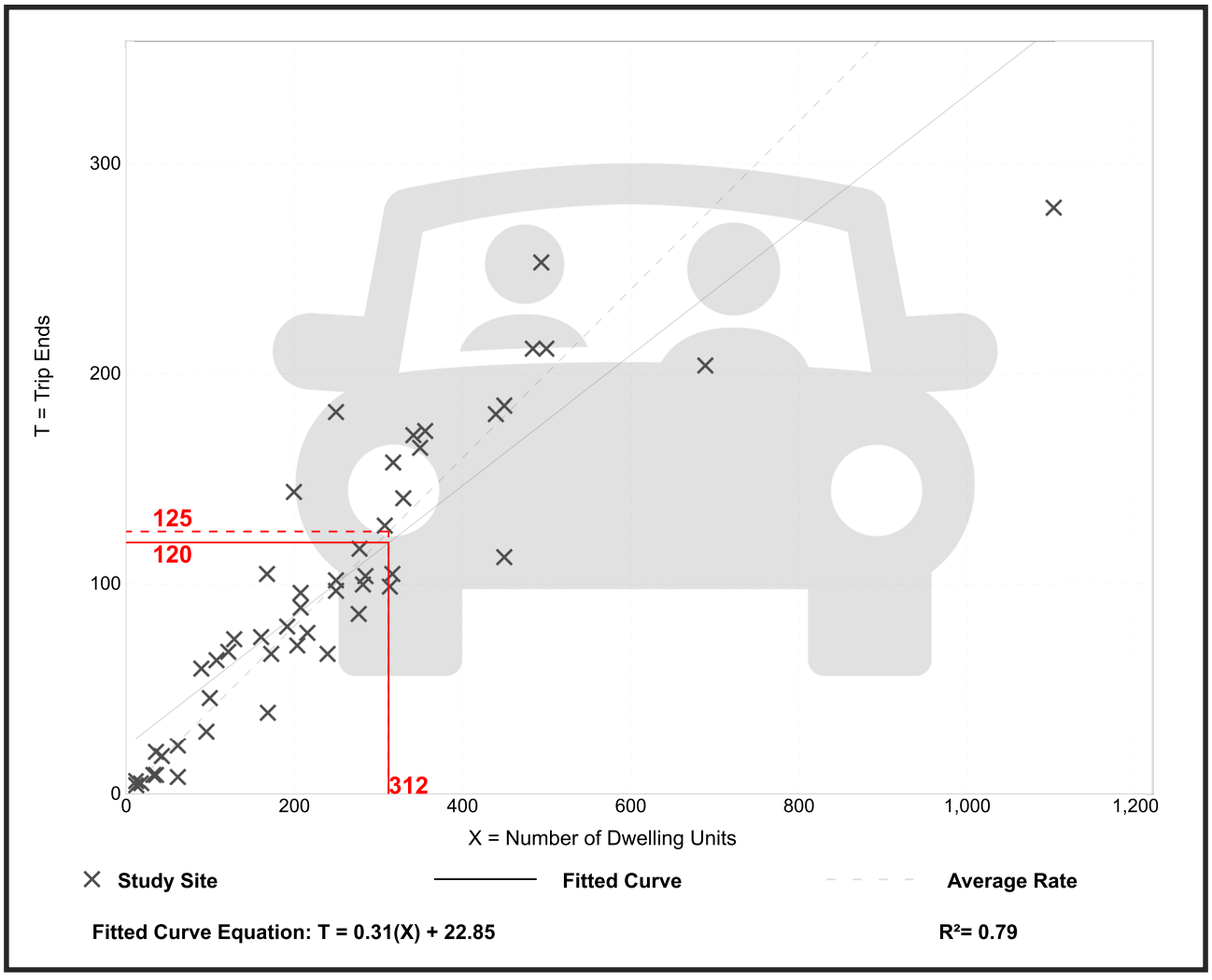
Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 49
Avg. Num. of Dwelling Units: 249
Directional Distribution: 24% entering, 76% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.40	0.13 - 0.73	0.12

Data Plot and Equation



Trip Gen Manual, 11th Edition ● Institute of Transportation Engineers

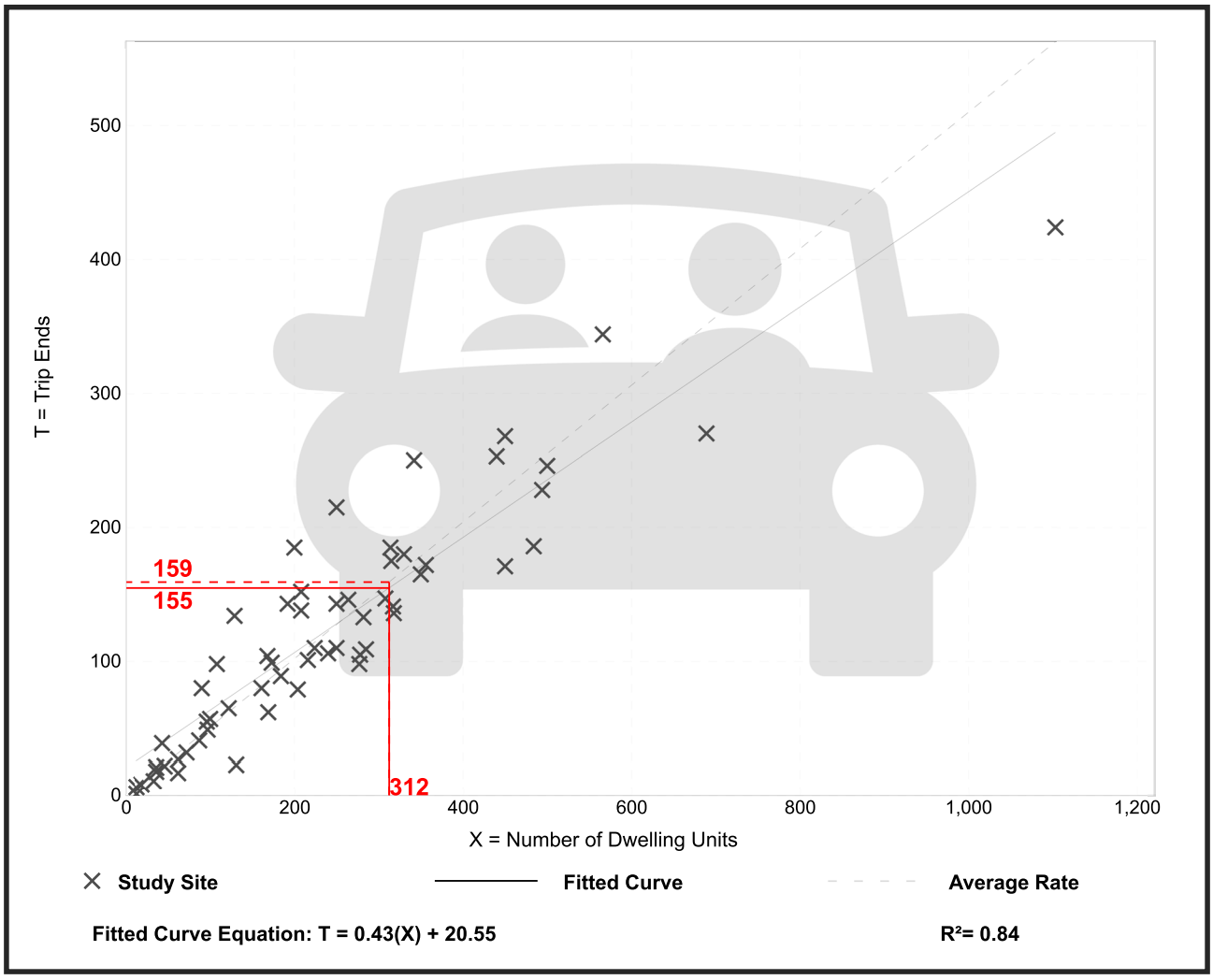
Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 59
Avg. Num. of Dwelling Units: 241
Directional Distribution: 63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.51	0.08 - 1.04	0.15

Data Plot and Equation



Trip Gen Manual, 11th Edition ● Institute of Transportation Engineers

Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Saturday, Peak Hour of Generator**

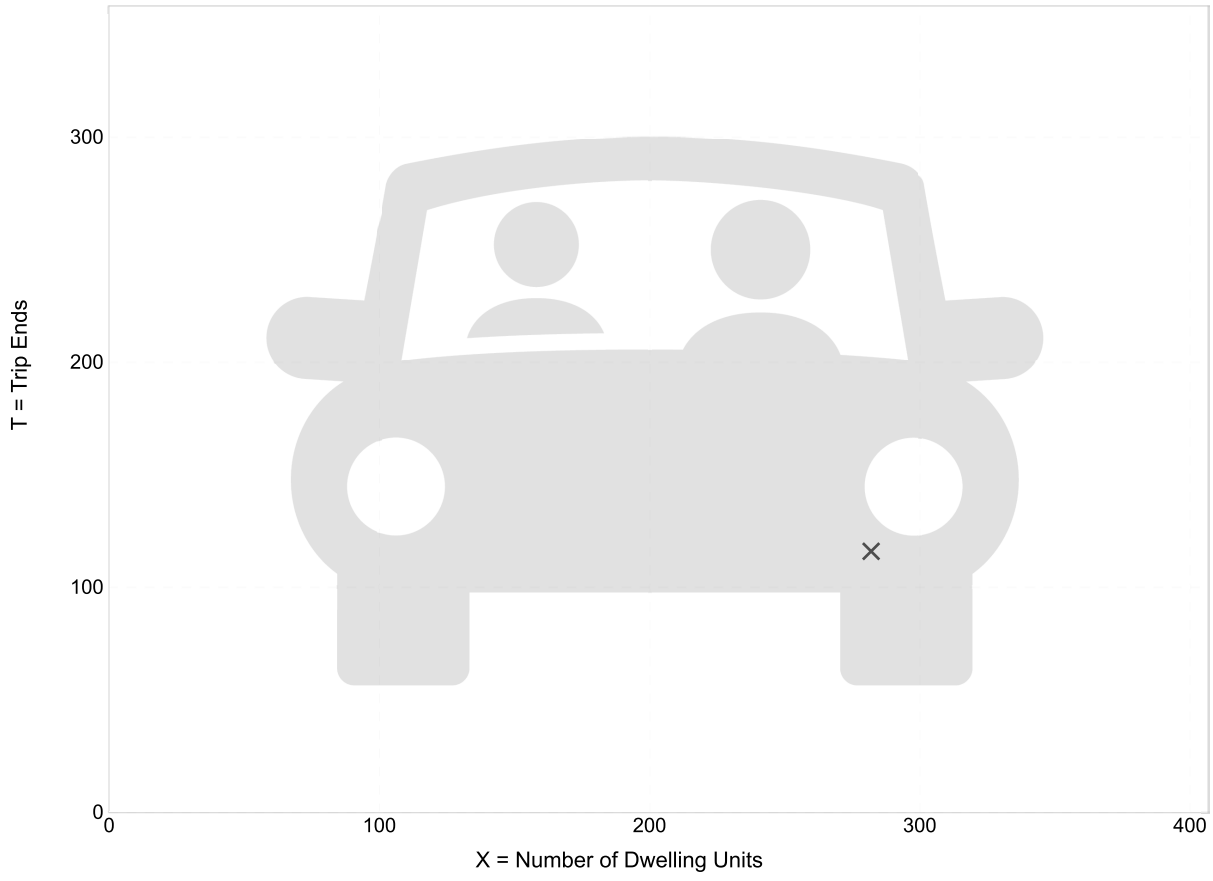
Setting/Location: **General Urban/Suburban**
Number of Studies: 1
Avg. Num. of Dwelling Units: 282
Directional Distribution: Not Available

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.41	0.41 - 0.41	*

Data Plot and Equation

Caution – Small Sample Size



Fitted Curve Equation: Not Given

R^2= **

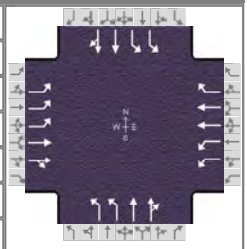
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APPENDIX G

Capacity Analysis Worksheets

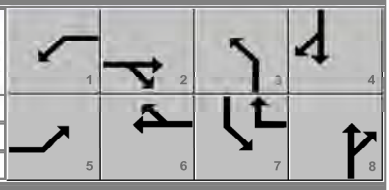
HCS7 Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	8:00 - 9:00 AM	PHF	0.95
Urban Street	US Route 14	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Main Street	File Name	AM Existing.xus		
Project Description	AM Existing				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	87	810	42	83	557	52	18	293	132	86	242	60

Signal Information					EB			WB			NB			SB		
Cycle, s	130.0	Reference Phase	2													
Offset, s	0	Reference Point	End	Green	5.2	0.6		69.4	2.0	3.3	28.6					
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.5	0.0		4.5	3.5	0.0	4.5					
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	0.0		1.5	1.0	0.0	1.5					



Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	87	810	42	83	557	52	18	293	132	86	242	60
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	2000	1900	1900	2000	1900	1900	1900	1900	1900	1900	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	1	2		0	1	0	0	0		2	0	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	4	3	3	4	3	3	4	3	3	4	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	12.0	12.0		12.0	12.0	12.0	12.0	12.0		12.0	12.0	
Turn Bay Length, ft	170	0		160	0	0	135	0		145	0	
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	35	35	35	35	35	35

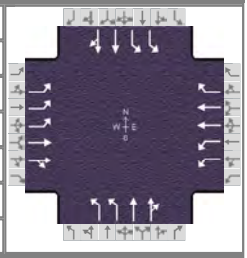
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	16.9	58.5	16.9	58.5	16.9	37.7	16.9	37.7
Yellow Change Interval (*Y*), s	3.5	4.5	3.5	4.5	3.5	4.5	3.5	4.5
Red Clearance Interval (R_c), s	1.0	1.5	1.0	1.5	1.0	1.5	1.0	1.5
Minimum Green (G_{min}), s	6	15	4	15	4	15	4	15
Start-Up Lost Time (*lt*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s	3.0	2.0	3.0	2.0	3.0	7.0	3.0	7.0
Recall Mode	Off	Min	Off	Min	Off	Off	Off	Off
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0	No	25	0	No	25	0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft	9.0	12	0	9.0	12	0	9.0	12	0	9.0	12	0
Street Width / Island / Curb	0	0	No	0	0	No	0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

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HCS7 Signalized Intersection Results Summary

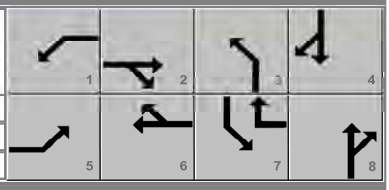
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	8:00 - 9:00 AM	PHF	0.95
Urban Street	US Route 14	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Main Street	File Name	AM Existing.xus		
Project Description	AM Existing				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	87	810	42	83	557	52	18	293	132	86	242	60

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	5.2	0.6	69.4	2.0	3.3	28.6	
Yellow	3.5	0.0	4.5	3.5	0.0	4.5	
Red	1.0	0.0	1.5	1.0	0.0	1.5	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	2.0	4.0	2.0	3.0	2.0	4.0	2.0	4.0
Phase Duration, s	10.3	76.0	9.7	75.4	6.5	34.6	9.8	37.8
Change Period, ($Y+R_c$), s	4.5	6.0	4.5	6.0	4.5	6.0	4.5	6.0
Max Allow Headway (*MAH*), s	4.0	0.0	4.0	0.0	4.0	9.2	4.0	9.2
Queue Clearance Time (g_s), s	4.2		5.2		2.7	16.4	5.4	11.0
Green Extension Time (g_e), s	0.3	0.0	0.2	0.0	0.0	12.1	0.1	14.8
Phase Call Probability	0.96		0.96		0.50	1.00	0.96	1.00
Max Out Probability	0.00		0.00		0.00	0.56	0.03	0.38

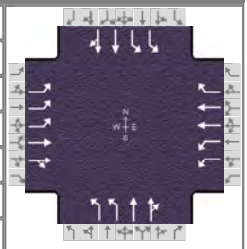
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	92	452	444	87	586	55	19	233	215	91	162	156
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1743	1969	1934	1757	1889	1610	1757	1900	1702	1730	1900	1771
Queue Service Time (g_s), s	2.2	12.2	12.8	3.2	7.3	1.9	0.7	13.4	14.4	3.4	8.4	9.0
Cycle Queue Clearance Time (g_c), s	2.2	12.2	12.8	3.2	7.3	1.9	0.7	13.4	14.4	3.4	8.4	9.0
Green Ratio (*g/C*)	0.04	0.54	0.54	0.04	0.53	0.57	0.02	0.22	0.22	0.04	0.24	0.24
Capacity (*c*), veh/h	233	1060	1041	140	2017	925	54	417	374	140	465	434
Volume-to-Capacity Ratio (*X*)	0.394	0.427	0.427	0.624	0.291	0.059	0.354	0.557	0.575	0.645	0.348	0.359
Back of Queue (*Q*), ft/ln (95 th percentile)	45.3	210.8	215.9	67.5	129.6	32.6	15.2	268.8	270.2	71.4	181.9	185.3
Back of Queue (*Q*), veh/ln (95 th percentile)	1.8	8.3	8.6	2.7	5.1	1.3	0.6	10.8	10.8	2.8	7.3	7.4
Queue Storage Ratio (*RQ*) (95 th percentile)	0.27	0.00	0.00	0.42	0.00	0.00	0.11	0.00	0.00	0.49	0.00	0.00
Uniform Delay (d_1), s/veh	60.4	10.2	10.9	61.5	9.8	12.2	63.4	40.6	43.7	61.4	35.9	37.9
Incremental Delay (d_2), s/veh	1.1	1.3	1.3	4.5	0.4	0.1	3.9	5.3	6.3	4.9	2.1	2.3
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	61.5	11.4	12.2	65.9	10.2	12.3	67.3	45.9	50.0	66.3	37.9	40.2
Level of Service (LOS)	E	B	B	E	B	B	E	D	D	E	D	D
Approach Delay, s/veh / LOS	16.4	B		17.0	B		48.7	D		45.1	D	
Intersection Delay, s/veh / LOS	26.9						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.42	B	2.56	C	2.60	C	2.60	C
Bicycle LOS Score / LOS	1.30	A	1.09	A	0.87	A	0.82	A

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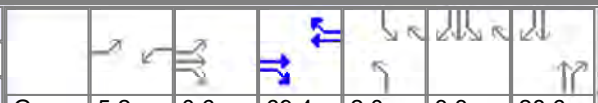
HCS7 Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	8:00 - 9:00 AM	PHF	0.95
Urban Street	US Route 14	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Main Street	File Name	AM Existing.xus		
Project Description	AM Existing				

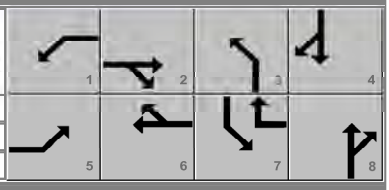


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	87	810	42	83	557	52	18	293	132	86	242	60

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	5.2	0.6		69.4	2.0	3.3	28.6					
Yellow	3.5	0.0		4.5	3.5	0.0	4.5					
Red	1.0	0.0		1.5	1.0	0.0	1.5					



Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.992	0.984	1.000	1.000	0.992	1.000	1.000	1.000	1.000	0.984	1.000	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	0.971	1.000	1.000	0.971	0.952	1.000	0.971	1.000	1.000	0.971	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.952	0.000		0.952	0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.982	0.982		0.000	0.847		0.896	0.896		0.932	0.932
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Movement Saturation Flow Rate (s), veh/h	5230	3711	192	3514	3778	1610	3514	2501	1101	3459	2953	718
Proportion of Vehicles Arriving on Green (P)	0.04	0.72	0.54	0.04	0.71	0.53	0.02	0.29	0.22	0.04	0.33	0.24
Incremental Delay Factor (k)	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.50	0.50

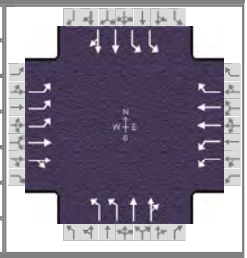
Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)	4.5	6.0	4.5	6.0	4.5	6.0	4.5	6.0
Green Ratio (g/C)	0.04	0.54	0.04	0.53	0.02	0.22	0.04	0.24
Permitted Saturation Flow Rate (s_p), veh/h/ln	0	0	0	0	0	0	0	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Permitted Service Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Permitted Queue Service Time (g_{ps}), s								
Time to First Blockage (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln				1610				
Protected Right Effective Green Time (g_R), s				5.3				

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.710	0.000	1.852	0.000	1.852	0.000	1.852	0.000
Pedestrian F_s / F_{delay}	0.000	0.105	0.000	0.106	0.000	0.147	0.000	0.145
Pedestrian M_{corner} / M_{cw}								
Bicycle c_b / d_b	1076.75	13.85	1067.51	14.13	439.40	39.58	489.98	37.05
Bicycle F_w / F_v	-3.64	0.82	-3.64	0.60	-3.64	0.38	-3.64	0.34

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HCS7 Signalized Intersection Results Graphical Summary

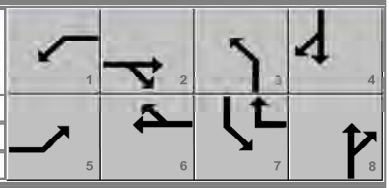
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	8:00 - 9:00 AM	PHF	0.95
Urban Street	US Route 14	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Main Street	File Name	AM Existing.xus		
Project Description	AM Existing				



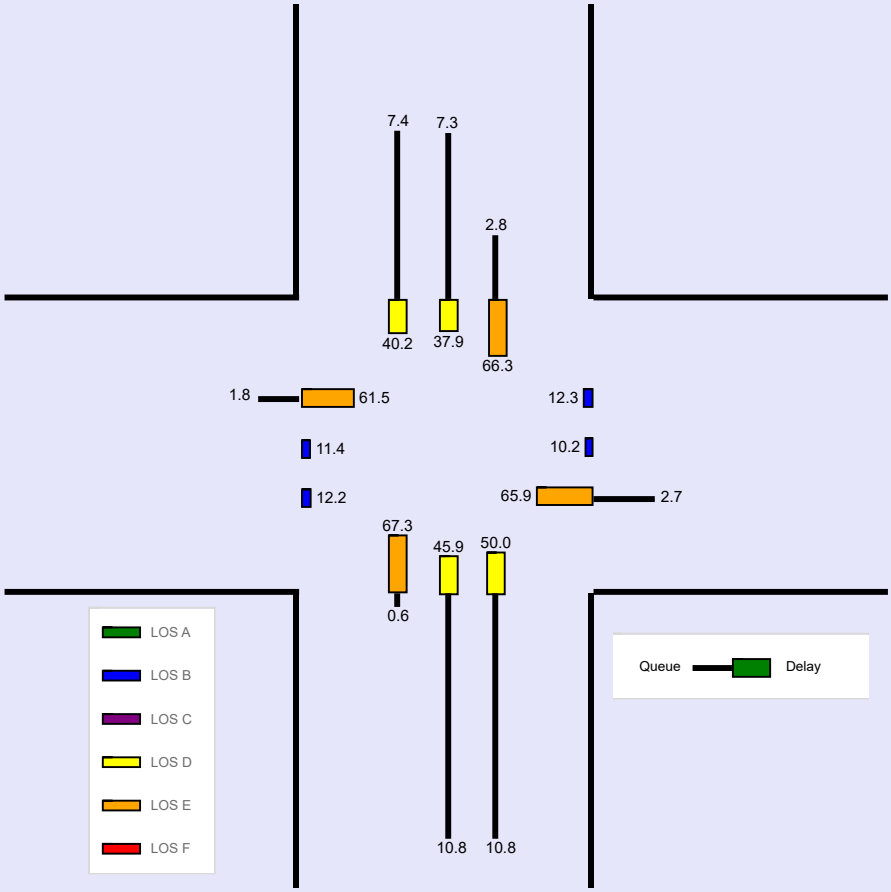
Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	87	810	42	83	557	52	18	293	132	86	242	60

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	5.2	0.6	69.4	2.0	3.3	28.6	
Yellow	3.5	0.0	4.5	3.5	0.0	4.5	
Red	1.0	0.0	1.5	1.0	0.0	1.5	



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)	45.3	210.8	215.9	67.5	129.6	32.6	15.2	268.8	270.2	71.4	181.9	185.3
Back of Queue (*Q*), veh/ln (95 th percentile)	1.8	8.3	8.6	2.7	5.1	1.3	0.6	10.8	10.8	2.8	7.3	7.4
Queue Storage Ratio (*RQ*) (95 th percentile)	0.27	0.00	0.00	0.42	0.00	0.00	0.11	0.00	0.00	0.49	0.00	0.00
Control Delay (*d*), s/veh	61.5	11.4	12.2	65.9	10.2	12.3	67.3	45.9	50.0	66.3	37.9	40.2
Level of Service (LOS)	E	B	B	E	B	B	E	D	D	E	D	D
Approach Delay, s/veh / LOS	16.4	B		17.0	B		48.7	D		45.1	D	
Intersection Delay, s/veh / LOS	26.9						C					



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--- Messages ---

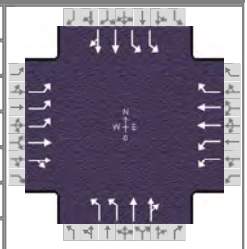
WARNING: One or more minor street movements was assigned an Arrival Type input value other than 3; this implies signal coordination on the minor street.

--- Comments ---

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HCS7 Signalized Intersection Input Data

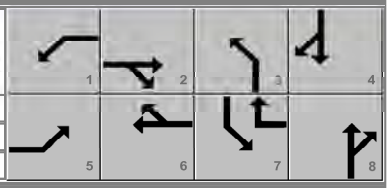
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	8:00 - 9:00 AM	PHF	0.95
Urban Street	US Route 14	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Main Street	File Name	AM No-Build.xus		
Project Description	AM No-Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	91	857	44	87	587	55	18	300	135	89	250	62

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	5.4	0.4	68.8	2.0	3.4	29.0	
Yellow	3.5	0.0	4.5	3.5	0.0	4.5	
Red	1.0	0.0	1.5	1.0	0.0	1.5	



Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	91	857	44	87	587	55	18	300	135	89	250	62
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	2000	1900	1900	2000	1900	1900	1900	1900	1900	1900	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	1	2		0	1	0	0	0		2	0	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	4	3	3	4	3	3	4	3	3	4	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	12.0	12.0		12.0	12.0	12.0	12.0	12.0		12.0	12.0	
Turn Bay Length, ft	170	0		160	0	0	135	0		145	0	
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	35	35	35	35	35	35

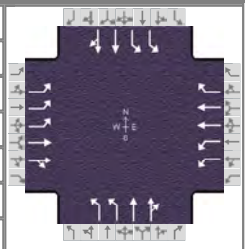
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	16.9	58.5	16.9	58.5	16.9	37.7	16.9	37.7
Yellow Change Interval (*Y*), s	3.5	4.5	3.5	4.5	3.5	4.5	3.5	4.5
Red Clearance Interval (R_c), s	1.0	1.5	1.0	1.5	1.0	1.5	1.0	1.5
Minimum Green (G_{min}), s	6	15	4	15	4	15	4	15
Start-Up Lost Time (*lt*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s	3.0	2.0	3.0	2.0	3.0	7.0	3.0	7.0
Recall Mode	Off	Min	Off	Min	Off	Off	Off	Off
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0	No	25	0	No	25	0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft	9.0	12	0	9.0	12	0	9.0	12	0	9.0	12	0
Street Width / Island / Curb	0	0	No	0	0	No	0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

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HCS7 Signalized Intersection Results Summary

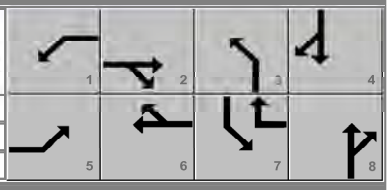
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	8:00 - 9:00 AM	PHF	0.95
Urban Street	US Route 14	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Main Street	File Name	AM No-Build.xus		
Project Description	AM No-Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	91	857	44	87	587	55	18	300	135	89	250	62

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	5.4	0.4	68.8	2.0	3.4	29.0	
Yellow	3.5	0.0	4.5	3.5	0.0	4.5	
Red	1.0	0.0	1.5	1.0	0.0	1.5	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	2.0	4.0	2.0	3.0	2.0	4.0	2.0	4.0
Phase Duration, s	10.3	75.2	9.9	74.8	6.5	35.0	9.9	38.4
Change Period, ($Y+R_c$), s	4.5	6.0	4.5	6.0	4.5	6.0	4.5	6.0
Max Allow Headway (*MAH*), s	4.0	0.0	4.0	0.0	4.0	9.2	4.0	9.2
Queue Clearance Time (g_s), s	4.3		5.3		2.7	16.7	5.5	11.3
Green Extension Time (g_e), s	0.3	0.0	0.2	0.0	0.0	12.3	0.1	15.2
Phase Call Probability	0.97		0.96		0.50	1.00	0.97	1.00
Max Out Probability	0.00		0.00		0.00	0.59	0.04	0.41

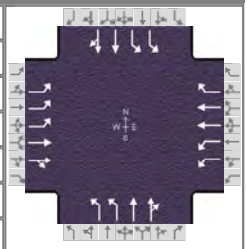
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	96	478	470	92	618	58	19	238	220	94	168	161
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1743	1969	1934	1757	1889	1610	1757	1900	1702	1730	1900	1771
Queue Service Time (g_s), s	2.3	13.6	14.2	3.3	8.0	2.1	0.7	13.7	14.7	3.5	8.7	9.3
Cycle Queue Clearance Time (g_c), s	2.3	13.6	14.2	3.3	8.0	2.1	0.7	13.7	14.7	3.5	8.7	9.3
Green Ratio (*g/C*)	0.04	0.53	0.53	0.04	0.53	0.57	0.02	0.22	0.22	0.04	0.25	0.25
Capacity (*c*), veh/h	234	1048	1030	145	1999	919	54	424	380	144	474	442
Volume-to-Capacity Ratio (*X*)	0.410	0.456	0.456	0.631	0.309	0.063	0.354	0.562	0.579	0.651	0.353	0.364
Back of Queue (*Q*), ft/ln (95 th percentile)	47.4	228.2	233.1	70.7	140.9	34.9	15.2	273.1	274.6	73.8	186.7	189.9
Back of Queue (*Q*), veh/ln (95 th percentile)	1.9	9.0	9.3	2.8	5.6	1.4	0.6	10.9	11.0	2.9	7.5	7.6
Queue Storage Ratio (*RQ*) (95 th percentile)	0.28	0.00	0.00	0.44	0.00	0.00	0.11	0.00	0.00	0.51	0.00	0.00
Uniform Delay (d_1), s/veh	60.4	10.8	11.5	61.3	10.2	12.4	63.4	40.3	43.4	61.4	35.4	37.5
Incremental Delay (d_2), s/veh	1.1	1.4	1.5	4.5	0.4	0.1	3.9	5.3	6.3	4.9	2.1	2.3
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	61.6	12.2	13.0	65.8	10.6	12.6	67.3	45.6	49.7	66.2	37.5	39.8
Level of Service (LOS)	E	B	B	E	B	B	E	D	D	E	D	D
Approach Delay, s/veh / LOS	17.1	B		17.3	B		48.4	D		44.8	D	
Intersection Delay, s/veh / LOS	27.0						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.42	B	2.56	C	2.60	C	2.60	C
Bicycle LOS Score / LOS	1.35	A	1.12	A	0.88	A	0.84	A

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HCS7 Signalized Intersection Intermediate Values

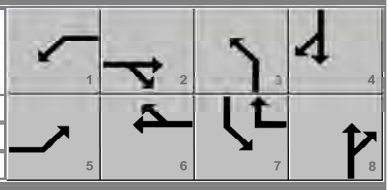
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	8:00 - 9:00 AM	PHF	0.95
Urban Street	US Route 14	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Main Street	File Name	AM No-Build.xus		
Project Description	AM No-Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	91	857	44	87	587	55	18	300	135	89	250	62

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	5.4	0.4	68.8	2.0	3.4	29.0	
Yellow	3.5	0.0	4.5	3.5	0.0	4.5	
Red	1.0	0.0	1.5	1.0	0.0	1.5	



Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.992	0.984	1.000	1.000	0.992	1.000	1.000	1.000	1.000	0.984	1.000	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	0.971	1.000	1.000	0.971	0.952	1.000	0.971	1.000	1.000	0.971	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.952	0.000		0.952	0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.983	0.983		0.000	0.847		0.896	0.896		0.932	0.932
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Movement Saturation Flow Rate (s), veh/h	5230	3713	191	3514	3778	1610	3514	2501	1101	3459	2953	718
Proportion of Vehicles Arriving on Green (P)	0.04	0.71	0.53	0.04	0.71	0.53	0.02	0.30	0.22	0.04	0.33	0.25
Incremental Delay Factor (k)	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.50	0.50

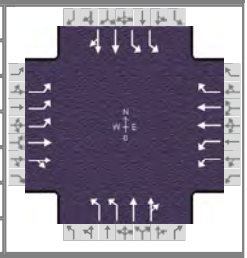
Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)	4.5	6.0	4.5	6.0	4.5	6.0	4.5	6.0
Green Ratio (g/C)	0.04	0.53	0.04	0.53	0.02	0.22	0.04	0.25
Permitted Saturation Flow Rate (s_p), veh/h/ln	0	0	0	0	0	0	0	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Permitted Service Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Permitted Queue Service Time (g_{ps}), s								
Time to First Blockage (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln				1610				
Protected Right Effective Green Time (g_R), s				5.4				

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.710	0.000	1.852	0.000	1.852	0.000	1.852	0.000
Pedestrian F_s / F_{delay}	0.000	0.106	0.000	0.107	0.000	0.147	0.000	0.144
Pedestrian M_{corner} / M_{cw}								
Bicycle c_b / d_b	1064.89	14.21	1058.07	14.42	446.22	39.23	498.95	36.61
Bicycle F_w / F_v	-3.64	0.86	-3.64	0.63	-3.64	0.39	-3.64	0.35

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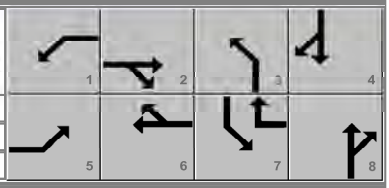
HCS7 Signalized Intersection Results Graphical Summary

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	8:00 - 9:00 AM	PHF	0.95
Urban Street	US Route 14	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Main Street	File Name	AM No-Build.xus		
Project Description	AM No-Build				

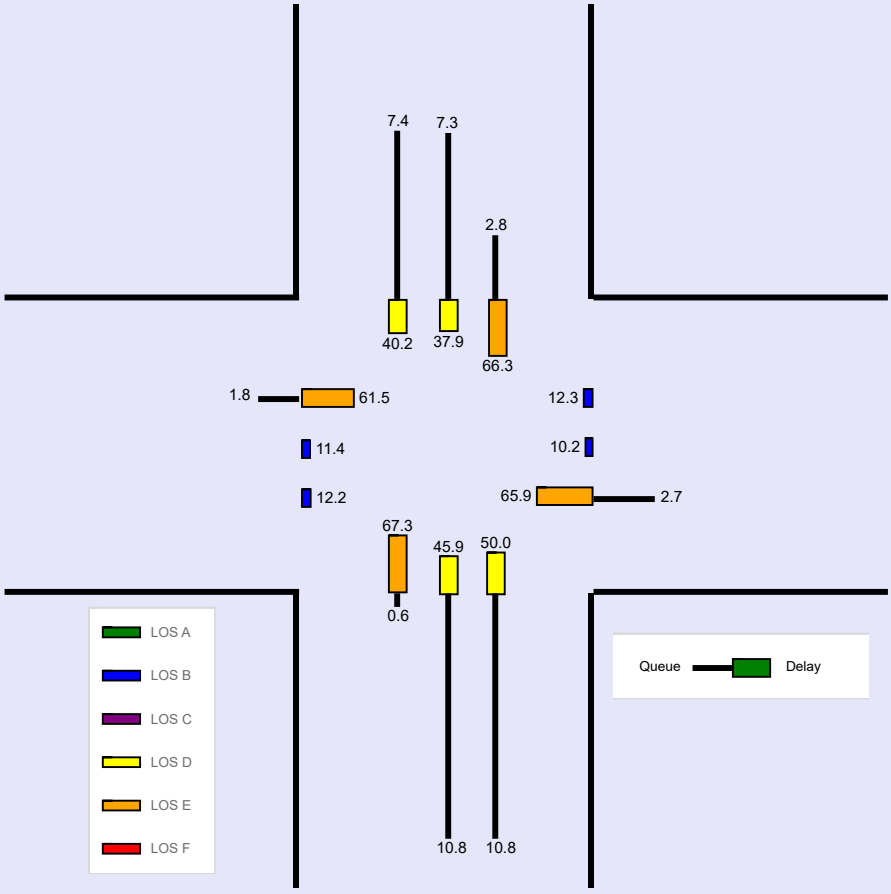


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	91	857	44	87	587	55	18	300	135	89	250	62

Signal Information					EB			WB			NB		
Cycle, s	130.0	Reference Phase	2										
Offset, s	0	Reference Point	End	Green	5.4	0.4		68.8	2.0	3.4	29.0		
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.5	0.0		4.5	3.5	0.0	4.5		
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	0.0		1.5	1.0	0.0	1.5		



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)	47.4	228.2	233.1	70.7	140.9	34.9	15.2	273.1	274.6	73.8	186.7	189.9
Back of Queue (*Q*), veh/ln (95 th percentile)	1.9	9.0	9.3	2.8	5.6	1.4	0.6	10.9	11.0	2.9	7.5	7.6
Queue Storage Ratio (*RQ*) (95 th percentile)	0.28	0.00	0.00	0.44	0.00	0.00	0.11	0.00	0.00	0.51	0.00	0.00
Control Delay (*d*), s/veh	61.6	12.2	13.0	65.8	10.6	12.6	67.3	45.6	49.7	66.2	37.5	39.8
Level of Service (LOS)	E	B	B	E	B	B	E	D	D	E	D	D
Approach Delay, s/veh / LOS	17.1	B		17.3	B		48.4	D		44.8	D	
Intersection Delay, s/veh / LOS	27.0						C					



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--- Messages ---

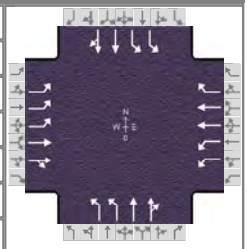
WARNING: One or more minor street movements was assigned an Arrival Type input value other than 3; this implies signal coordination on the minor street.

--- Comments ---

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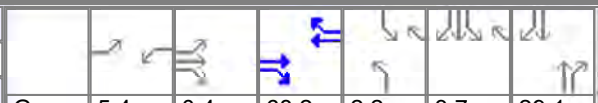
HCS7 Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	8:00 - 9:00 AM	PHF	0.95
Urban Street	US Route 14	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Main Street	File Name	AM Total.xus		
Project Description	AM Total				

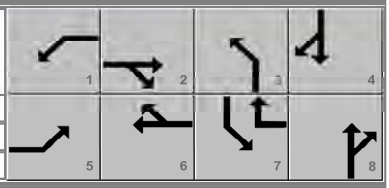


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	91	863	55	87	590	59	21	304	135	100	262	62

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	5.4	0.4		68.2	2.2	3.7	29.1					
Yellow	3.5	0.0		4.5	3.5	0.0	4.5					
Red	1.0	0.0		1.5	1.0	0.0	1.5					



Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	91	863	55	87	590	59	21	304	135	100	262	62
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	2000	1900	1900	2000	1900	1900	1900	1900	1900	1900	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	1	2		0	1	0	0	0		2	0	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	4	3	3	4	3	3	4	3	3	4	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	12.0	12.0		12.0	12.0	12.0	12.0	12.0		12.0	12.0	
Turn Bay Length, ft	170	0		160	0	0	135	0		145	0	
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	35	35	35	35	35	35

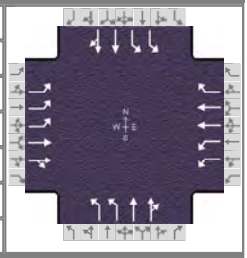
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	16.9	58.5	16.9	58.5	16.9	37.7	16.9	37.7
Yellow Change Interval (*Y*), s	3.5	4.5	3.5	4.5	3.5	4.5	3.5	4.5
Red Clearance Interval (R_c), s	1.0	1.5	1.0	1.5	1.0	1.5	1.0	1.5
Minimum Green (G_{min}), s	6	15	4	15	4	15	4	15
Start-Up Lost Time (*lt*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s	3.0	2.0	3.0	2.0	3.0	7.0	3.0	7.0
Recall Mode	Off	Min	Off	Min	Off	Off	Off	Off
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0	No	25	0	No	25	0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft	9.0	12	0	9.0	12	0	9.0	12	0	9.0	12	0
Street Width / Island / Curb	0	0	No	0	0	No	0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

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HCS7 Signalized Intersection Results Summary

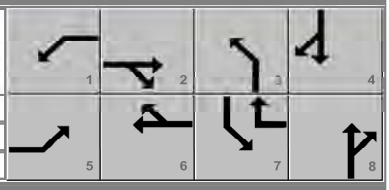
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	8:00 - 9:00 AM	PHF	0.95
Urban Street	US Route 14	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Main Street	File Name	AM Total.xus		
Project Description	AM Total				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	91	863	55	87	590	59	21	304	135	100	262	62

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	5.4	0.4	68.2	2.2	3.7	29.1	
Yellow	3.5	0.0	4.5	3.5	0.0	4.5	
Red	1.0	0.0	1.5	1.0	0.0	1.5	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	2.0	4.0	2.0	3.0	2.0	4.0	2.0	4.0
Phase Duration, s	10.3	74.6	9.9	74.2	6.7	35.1	10.4	38.8
Change Period, ($Y+R_c$), s	4.5	6.0	4.5	6.0	4.5	6.0	4.5	6.0
Max Allow Headway (*MAH*), s	4.0	0.0	4.0	0.0	4.0	9.2	4.0	9.2
Queue Clearance Time (g_s), s	4.3		5.3		2.8	16.8	5.9	11.6
Green Extension Time (g_e), s	0.3	0.0	0.2	0.0	0.0	12.3	0.1	15.3
Phase Call Probability	0.97		0.96		0.55	1.00	0.98	1.00
Max Out Probability	0.00		0.00		0.00	0.61	0.07	0.43

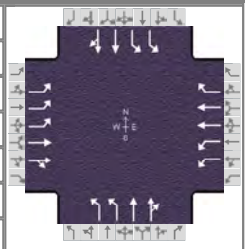
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	96	488	478	92	621	62	22	240	222	105	174	167
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1743	1969	1927	1757	1889	1610	1757	1900	1704	1730	1900	1775
Queue Service Time (g_s), s	2.3	14.3	15.1	3.3	8.2	2.2	0.8	13.9	14.8	3.9	9.0	9.6
Cycle Queue Clearance Time (g_c), s	2.3	14.3	15.1	3.3	8.2	2.2	0.8	13.9	14.8	3.9	9.0	9.6
Green Ratio (*g/C*)	0.04	0.53	0.53	0.04	0.52	0.57	0.02	0.22	0.22	0.05	0.25	0.25
Capacity (*c*), veh/h	234	1039	1017	145	1981	918	59	425	381	157	480	448
Volume-to-Capacity Ratio (*X*)	0.410	0.470	0.470	0.632	0.313	0.068	0.372	0.565	0.581	0.669	0.363	0.373
Back of Queue (*Q*), ft/ln (95 th percentile)	47.4	237.3	244.3	70.7	145	37.7	17.6	275.4	276.6	82.6	192.4	194.9
Back of Queue (*Q*), veh/ln (95 th percentile)	1.9	9.3	9.8	2.8	5.8	1.5	0.7	11.0	11.1	3.3	7.7	7.8
Queue Storage Ratio (*RQ*) (95 th percentile)	0.28	0.00	0.00	0.44	0.00	0.00	0.13	0.00	0.00	0.57	0.00	0.00
Uniform Delay (d_1), s/veh	60.4	11.2	12.1	61.3	10.5	12.5	63.2	40.2	43.4	61.1	35.2	37.2
Incremental Delay (d_2), s/veh	1.1	1.5	1.6	4.5	0.4	0.1	3.8	5.3	6.3	4.9	2.1	2.4
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	61.6	12.7	13.7	65.8	11.0	12.7	67.0	45.6	49.7	65.9	37.3	39.5
Level of Service (LOS)	E	B	B	E	B	B	E	D	D	E	D	D
Approach Delay, s/veh / LOS	17.6	B		17.6	B		48.5	D		44.9	D	
Intersection Delay, s/veh / LOS	27.4						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.42	B	2.56	C	2.60	C	2.60	C
Bicycle LOS Score / LOS	1.36	A	1.13	A	0.89	A	0.86	A

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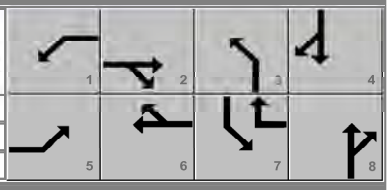
HCS7 Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	8:00 - 9:00 AM	PHF	0.95
Urban Street	US Route 14	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Main Street	File Name	AM Total.xus		
Project Description	AM Total				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	91	863	55	87	590	59	21	304	135	100	262	62

Signal Information												
Cycle, s	130.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On	Green	5.4	0.4	68.2	2.2	3.7	29.1		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.5	0.0	4.5	3.5	0.0	4.5		
				Red	1.0	0.0	1.5	1.0	0.0	1.5		



Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.992	0.984	1.000	1.000	0.992	1.000	1.000	1.000	1.000	0.984	1.000	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	0.971	1.000	1.000	0.971	0.952	1.000	0.971	1.000	1.000	0.971	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.952	0.000		0.952	0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.979	0.979		0.000	0.847		0.897	0.897		0.934	0.934
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Movement Saturation Flow Rate (s), veh/h	5230	3662	233	3514	3778	1610	3514	2512	1091	3459	2982	693
Proportion of Vehicles Arriving on Green (P)	0.04	0.70	0.53	0.04	0.70	0.52	0.02	0.30	0.22	0.05	0.34	0.25
Incremental Delay Factor (k)	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.50	0.50

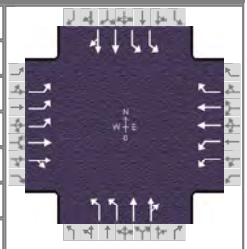
Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)	4.5	6.0	4.5	6.0	4.5	6.0	4.5	6.0
Green Ratio (g/C)	0.04	0.53	0.04	0.52	0.02	0.22	0.05	0.25
Permitted Saturation Flow Rate (s_p), veh/h/ln	0	0	0	0	0	0	0	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Permitted Service Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Permitted Queue Service Time (g_{ps}), s								
Time to First Blockage (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln				1610				
Protected Right Effective Green Time (g_R), s				5.9				

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.710	0.000	1.852	0.000	1.852	0.000	1.852	0.000
Pedestrian F_s / F_{delay}	0.000	0.107	0.000	0.108	0.000	0.147	0.000	0.144
Pedestrian M_{corner} / M_{cw}								
Bicycle c_b / d_b	1055.66	14.49	1048.76	14.70	447.86	39.15	504.91	36.32
Bicycle F_w / F_v	-3.64	0.88	-3.64	0.64	-3.64	0.40	-3.64	0.37

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HCS7 Signalized Intersection Results Graphical Summary

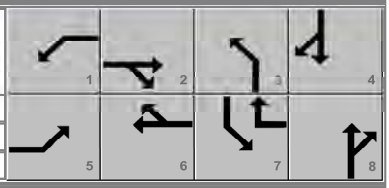
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	8:00 - 9:00 AM	PHF	0.95
Urban Street	US Route 14	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Main Street	File Name	AM Total.xus		
Project Description	AM Total				



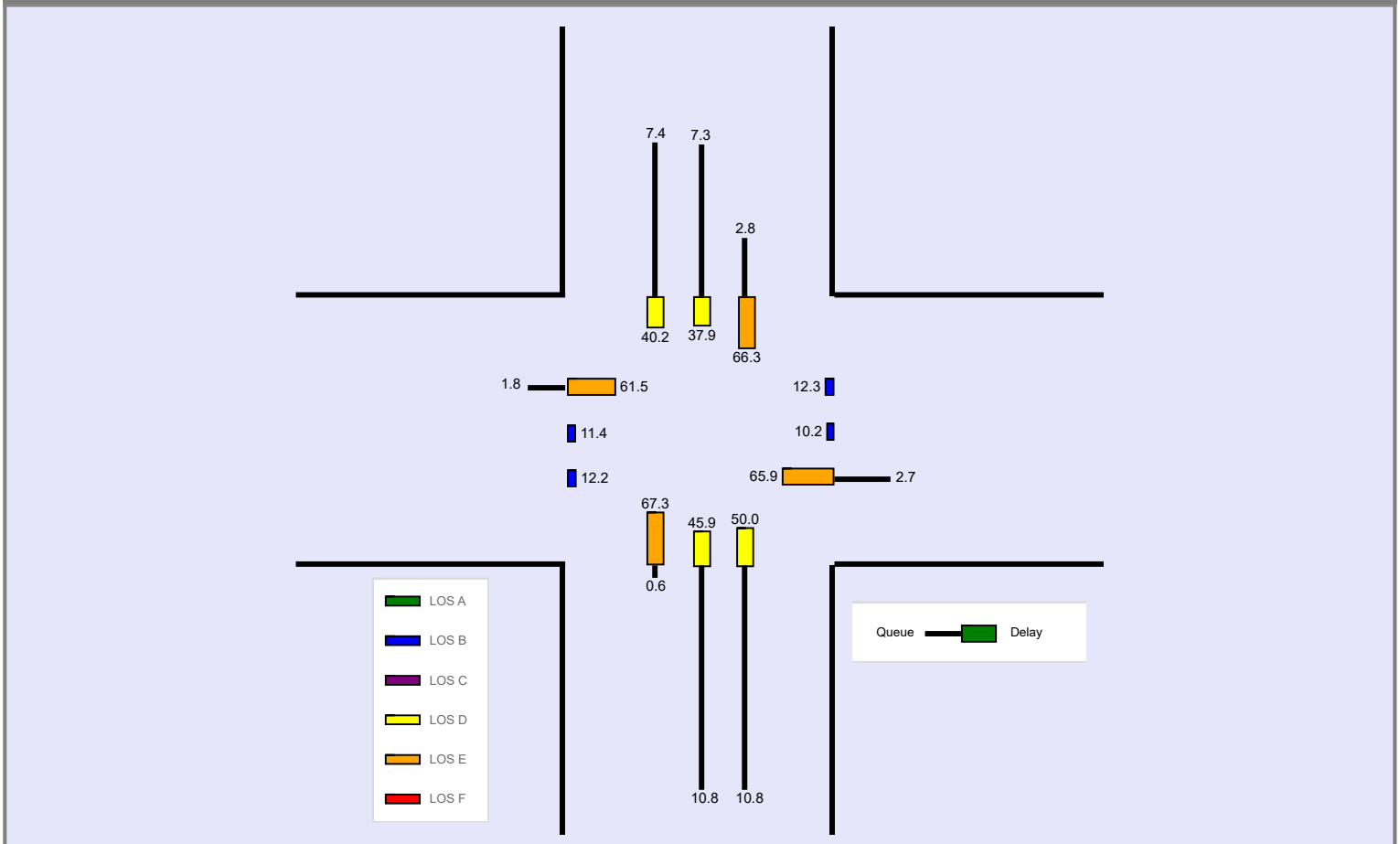
Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	91	863	55	87	590	59	21	304	135	100	262	62

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	5.4	0.4	68.2	2.2	3.7	29.1	
Yellow	3.5	0.0	4.5	3.5	0.0	4.5	
Red	1.0	0.0	1.5	1.0	0.0	1.5	



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)	47.4	237.3	244.3	70.7	145	37.7	17.6	275.4	276.6	82.6	192.4	194.9
Back of Queue (*Q*), veh/ln (95 th percentile)	1.9	9.3	9.8	2.8	5.8	1.5	0.7	11.0	11.1	3.3	7.7	7.8
Queue Storage Ratio (*RQ*) (95 th percentile)	0.28	0.00	0.00	0.44	0.00	0.00	0.13	0.00	0.00	0.57	0.00	0.00
Control Delay (*d*), s/veh	61.6	12.7	13.7	65.8	11.0	12.7	67.0	45.6	49.7	65.9	37.3	39.5
Level of Service (LOS)	E	B	B	E	B	B	E	D	D	E	D	D
Approach Delay, s/veh / LOS	17.6	B		17.6	B		48.5	D		44.9	D	
Intersection Delay, s/veh / LOS	27.4						C					



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--- Messages ---

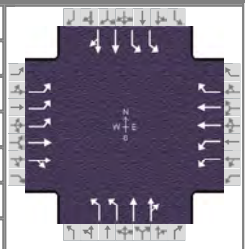
WARNING: One or more minor street movements was assigned an Arrival Type input value other than 3; this implies signal coordination on the minor street.

--- Comments ---

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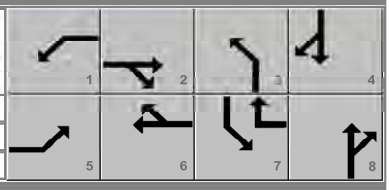
HCS7 Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	4:30 - 5:30 PM	PHF	0.97
Urban Street	US Route 14	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Main Street	File Name	PM Existing.xus		
Project Description	PM Existing				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	131	980	50	212	1121	104	130	380	163	126	437	156

Signal Information												
Cycle, s	145.0	Reference Phase	2									
Offset, s	0	Reference Point	End	Green	6.0	0.7	67.6	7.3	0.2	37.7		
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.5	3.5	4.5	3.5	0.0	4.5		
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	1.0	1.5	1.0	0.0	1.5		



Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	131	980	50	212	1121	104	130	380	163	126	437	156
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	2000	1900	1900	2000	1900	1900	1900	1900	1900	1900	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	0	0		1	0	2	0	0		0	0	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	4	3	3	4	3	3	4	3	3	4	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	12.0	12.0		12.0	12.0	12.0	12.0	12.0		12.0	12.0	
Turn Bay Length, ft	170	0		160	0	0	135	0		145	0	
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	35	35	35	35	35	35

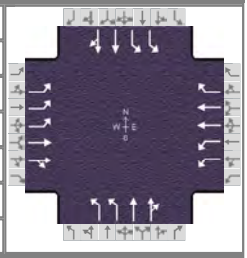
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	18.9	71.0	14.5	66.6	16.0	45.0	14.5	43.5
Yellow Change Interval (*Y*), s	3.5	4.5	3.5	4.5	3.5	4.5	3.5	4.5
Red Clearance Interval (R_c), s	1.0	1.5	1.0	1.5	1.0	1.5	1.0	1.5
Minimum Green (G_{min}), s	6	15	4	15	4	15	4	15
Start-Up Lost Time (*lt*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s	3.0	2.0	3.0	2.0	3.0	7.0	3.0	7.0
Recall Mode	Off	Min	Off	Min	Off	Off	Off	Off
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0	No	25	0	No	25	0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft	9.0	12	0	9.0	12	0	9.0	12	0	9.0	12	0
Street Width / Island / Curb	0	0	No	0	0	No	0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

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HCS7 Signalized Intersection Results Summary

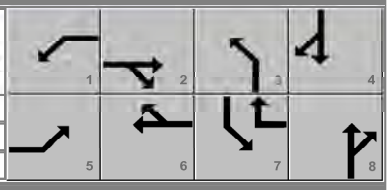
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	4:30 - 5:30 PM	PHF	0.97
Urban Street	US Route 14	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Main Street	File Name	PM Existing.xus		
Project Description	PM Existing				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	131	980	50	212	1121	104	130	380	163	126	437	156

Signal Information			
Cycle, s	145.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	6.0	0.7	67.6	7.3	0.2	37.7	
Yellow	3.5	3.5	4.5	3.5	0.0	4.5	
Red	1.0	1.0	1.5	1.0	0.0	1.5	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	2.0	4.0	2.0	3.0	2.0	4.0	2.0	4.0
Phase Duration, s	10.5	73.6	15.7	78.8	12.1	43.9	11.8	43.7
Change Period, ($Y+R_c$), s	4.5	6.0	4.5	6.0	4.5	6.0	4.5	6.0
Max Allow Headway (*MAH*), s	4.0	0.0	4.0	0.0	4.0	9.2	4.0	9.2
Queue Clearance Time (g_s), s	5.7		11.0		7.4	21.5	7.3	23.4
Green Extension Time (g_e), s	0.4	0.0	0.2	0.0	0.1	15.7	0.1	14.2
Phase Call Probability	1.00		1.00		1.00	1.00	0.99	1.00
Max Out Probability	0.00		1.00		1.00	0.83	1.00	0.86

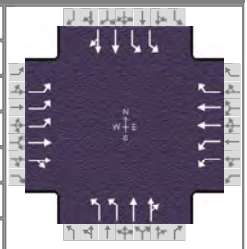
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	135	536	526	219	1156	107	134	292	268	130	318	293
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1757	2000	1965	1743	1904	1585	1757	1900	1707	1757	1900	1729
Queue Service Time (g_s), s	3.7	22.8	23.4	9.0	24.4	4.7	5.4	18.3	19.5	5.3	20.4	21.4
Cycle Queue Clearance Time (g_c), s	3.7	22.8	23.4	9.0	24.4	4.7	5.4	18.3	19.5	5.3	20.4	21.4
Green Ratio (*g/C*)	0.04	0.47	0.47	0.08	0.50	0.55	0.05	0.26	0.26	0.05	0.26	0.26
Capacity (*c*), veh/h	218	933	916	268	1912	876	183	496	446	178	494	449
Volume-to-Capacity Ratio (*X*)	0.621	0.574	0.574	0.814	0.605	0.122	0.732	0.589	0.600	0.730	0.645	0.653
Back of Queue (*Q*), ft/ln (95 th percentile)	76.4	376.4	385.6	198.3	357	81.3	116.3	342.6	342.7	114.4	378.4	376.1
Back of Queue (*Q*), veh/ln (95 th percentile)	3.1	15.1	15.4	7.9	14.3	3.2	4.7	13.7	13.7	4.6	15.1	15.0
Queue Storage Ratio (*RQ*) (95 th percentile)	0.45	0.00	0.00	1.24	0.00	0.00	0.86	0.00	0.00	0.79	0.00	0.00
Uniform Delay (d_1), s/veh	68.4	19.0	19.8	65.9	16.0	15.6	67.7	40.9	44.7	67.9	41.8	45.1
Incremental Delay (d_2), s/veh	2.9	2.6	2.6	12.0	1.4	0.3	5.5	5.1	5.9	7.0	6.4	7.2
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	71.3	21.5	22.5	77.9	17.4	15.8	73.3	45.9	50.6	74.9	48.1	52.3
Level of Service (LOS)	E	C	C	E	B	B	E	D	D	E	D	D
Approach Delay, s/veh / LOS	27.5	C		26.2	C		53.0	D		54.5	D	
Intersection Delay, s/veh / LOS	36.2						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.43	B	2.57	C	2.60	C	2.60	C
Bicycle LOS Score / LOS	1.48	A	1.71	B	1.06	A	1.10	A

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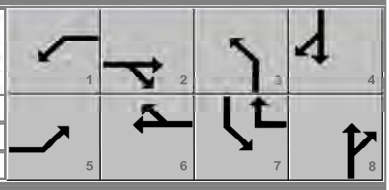
HCS7 Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	4:30 - 5:30 PM	PHF	0.97
Urban Street	US Route 14	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Main Street	File Name	PM Existing.xus		
Project Description	PM Existing				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	131	980	50	212	1121	104	130	380	163	126	437	156

Signal Information												
Cycle, s	145.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On	Green	6.0	0.7	67.6	7.3	0.2	37.7		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.5	3.5	4.5	3.5	0.0	4.5		
				Red	1.0	1.0	1.5	1.0	0.0	1.5		



Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	1.000	1.000	1.000	0.992	1.000	0.984	1.000	1.000	1.000	1.000	1.000	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	0.971	1.000	1.000	0.971	0.952	1.000	0.971	1.000	1.000	0.971	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.952	0.000		0.952	0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.983	0.983		0.000	0.847		0.898	0.898		0.910	0.910
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Movement Saturation Flow Rate (s), veh/h	5271	3773	192	3487	3808	1585	3514	2535	1072	3514	2681	949
Proportion of Vehicles Arriving on Green (P)	0.04	0.62	0.47	0.08	0.67	0.50	0.05	0.35	0.26	0.05	0.35	0.26
Incremental Delay Factor (k)	0.11	0.50	0.50	0.23	0.50	0.50	0.11	0.50	0.50	0.14	0.50	0.50

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)	4.5	6.0	4.5	6.0	4.5	6.0	4.5	6.0
Green Ratio (g/C)	0.04	0.47	0.08	0.50	0.05	0.26	0.05	0.26
Permitted Saturation Flow Rate (s_p), veh/h/ln	0	0	0	0	0	0	0	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Permitted Service Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Permitted Queue Service Time (g_{ps}), s								
Time to First Blockage (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln				1585				
Protected Right Effective Green Time (g_R), s				7.3				

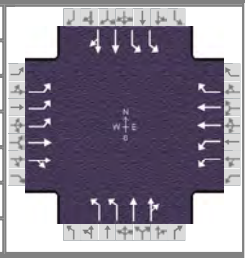
Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.710	0.000	1.852	0.000	1.852	0.000	1.852	0.000
Pedestrian F_s / F_{delay}	0.000	0.121	0.000	0.116	0.000	0.147	0.000	0.148
Pedestrian M_{corner} / M_{cw}								
Bicycle c_b / d_b	932.62	20.65	1004.01	17.98	522.51	39.57	519.50	39.73
Bicycle F_w / F_v	-3.64	0.99	-3.64	1.22	-3.64	0.57	-3.64	0.61

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HCS7 Signalized Intersection Results Graphical Summary

Appendix G

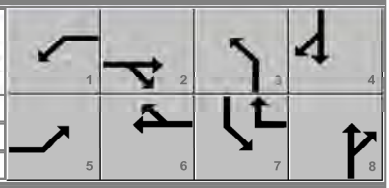
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	4:30 - 5:30 PM	PHF	0.97
Urban Street	US Route 14	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Main Street	File Name	PM Existing.xus		
Project Description	PM Existing				



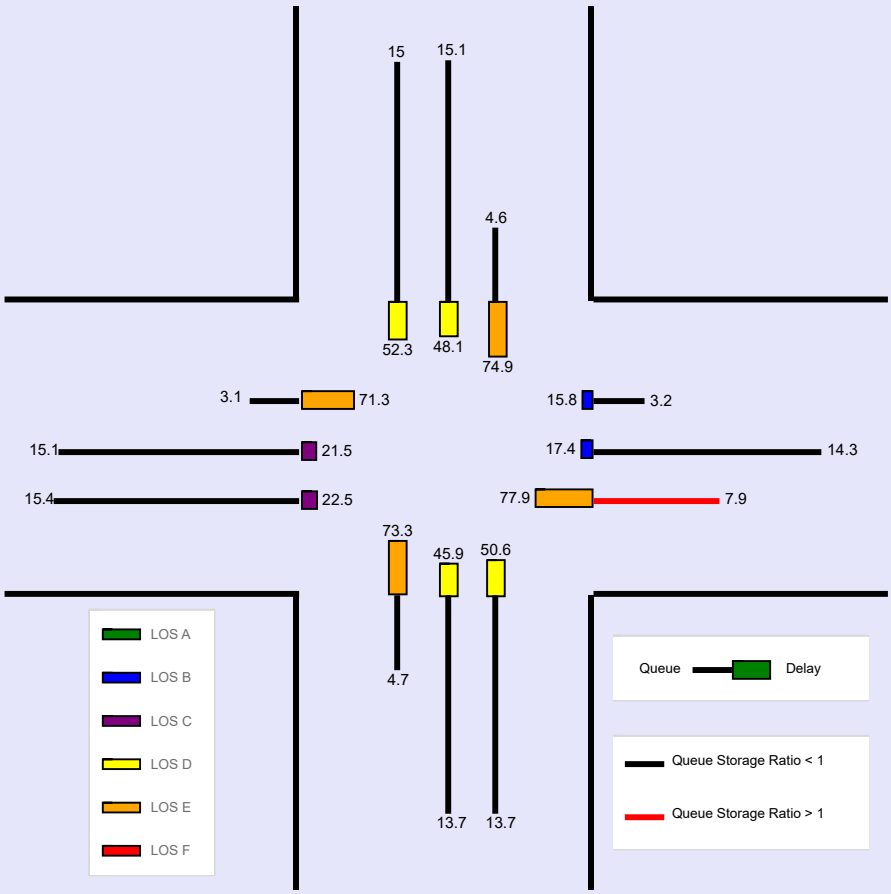
Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	131	980	50	212	1121	104	130	380	163	126	437	156

Signal Information			
Cycle, s	145.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	6.0	0.7	67.6	7.3	0.2	37.7	
Yellow	3.5	3.5	4.5	3.5	0.0	4.5	
Red	1.0	1.0	1.5	1.0	0.0	1.5	



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)	76.4	376.4	385.6	198.3	357	81.3	116.3	342.6	342.7	114.4	378.4	376.1
Back of Queue (*Q*), veh/ln (95 th percentile)	3.1	15.1	15.4	7.9	14.3	3.2	4.7	13.7	13.7	4.6	15.1	15.0
Queue Storage Ratio (*RQ*) (95 th percentile)	0.45	0.00	0.00	1.24	0.00	0.00	0.86	0.00	0.00	0.79	0.00	0.00
Control Delay (*d*), s/veh	71.3	21.5	22.5	77.9	17.4	15.8	73.3	45.9	50.6	74.9	48.1	52.3
Level of Service (LOS)	E	C	C	E	B	B	E	D	D	E	D	D
Approach Delay, s/veh / LOS	27.5	C		26.2	C		53.0	D		54.5	D	
Intersection Delay, s/veh / LOS	36.2						D					



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--- Messages ---

WARNING: One or more minor street movements was assigned an Arrival Type input value other than 3; this implies signal coordination on the minor street.

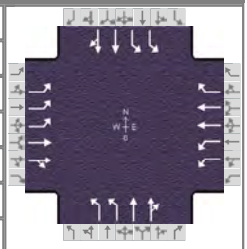
WARNING: Since queue spillover from turn lanes and spillback into upstream intersections is not accounted for in the HCM procedures, use of a simulation tool may be advised in situations where the Queue Storage Ratio exceeds 1.0.

--- Comments ---

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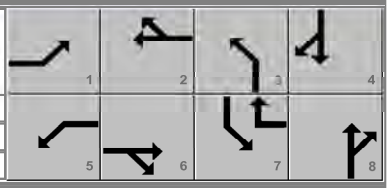
HCS7 Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	4:30 - 5:30 PM	PHF	0.97
Urban Street	US Route 14	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Main Street	File Name	PM No-Build.xus		
Project Description	PM No-Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	138	1030	53	223	1182	110	133	389	167	130	451	161

Signal Information												
Cycle, s	145.0	Reference Phase	2									
Offset, s	0	Reference Point	End	Green	6.2	0.9	66.7	7.5	0.2	38.0		
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.5	3.5	4.5	3.5	0.0	4.5		
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	1.0	1.5	1.0	0.0	1.5		



Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	138	1030	53	223	1182	110	133	389	167	130	451	161
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	2000	1900	1900	2000	1900	1900	1900	1900	1900	1900	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	0	0		1	0	2	0	0		0	0	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	4	3	3	4	3	3	4	3	3	4	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	12.0	12.0		12.0	12.0	12.0	12.0	12.0		12.0	12.0	
Turn Bay Length, ft	170	0		160	0	0	135	0		145	0	
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	35	35	35	35	35	35

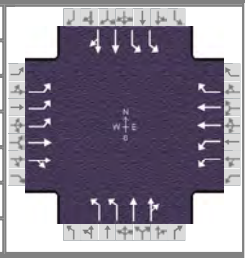
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	18.9	71.0	14.5	66.6	16.0	45.0	14.5	43.5
Yellow Change Interval (*Y*), s	3.5	4.5	3.5	4.5	3.5	4.5	3.5	4.5
Red Clearance Interval (R_c), s	1.0	1.5	1.0	1.5	1.0	1.5	1.0	1.5
Minimum Green (G_{min}), s	6	15	4	15	4	15	4	15
Start-Up Lost Time (*lt*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s	3.0	2.0	3.0	2.0	3.0	7.0	3.0	7.0
Recall Mode	Off	Min	Off	Min	Off	Off	Off	Off
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0	No	25	0	No	25	0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft	9.0	12	0	9.0	12	0	9.0	12	0	9.0	12	0
Street Width / Island / Curb	0	0	No	0	0	No	0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

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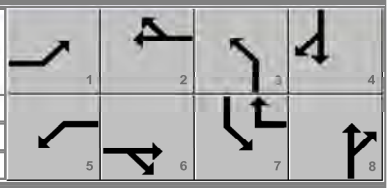
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	4:30 - 5:30 PM	PHF	0.97
Urban Street	US Route 14	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Main Street	File Name	PM No-Build.xus		
Project Description	PM No-Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	138	1030	53	223	1182	110	133	389	167	130	451	161

Signal Information												
Cycle, s	145.0	Reference Phase	2									
Offset, s	0	Reference Point	End	Green	6.2	0.9	66.7	7.5	0.2	38.0		
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.5	3.5	4.5	3.5	0.0	4.5		
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	1.0	1.5	1.0	0.0	1.5		



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2	3	8	7	4
Case Number	2.0	4.0	2.0	3.0	2.0	4.0	2.0	4.0
Phase Duration, s	10.7	72.7	16.1	78.1	12.2	44.2	12.0	44.0
Change Period, ($Y+R_c$), s	4.5	6.0	4.5	6.0	4.5	6.0	4.5	6.0
Max Allow Headway (*MAH*), s	4.0	0.0	4.0	0.0	4.0	9.2	4.0	9.2
Queue Clearance Time (g_s), s	5.9		11.4		7.6	22.0	7.5	24.2
Green Extension Time (g_e), s	0.4	0.0	0.2	0.0	0.1	15.5	0.1	13.9
Phase Call Probability	1.00		1.00		1.00	1.00	1.00	1.00
Max Out Probability	0.00		1.00		1.00	0.85	1.00	0.88

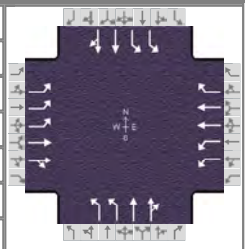
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	142	563	553	230	1219	113	137	299	274	134	329	302
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1757	2000	1965	1743	1904	1585	1757	1900	1707	1757	1900	1729
Queue Service Time (g_s), s	3.9	25.3	25.9	9.4	27.3	5.0	5.6	18.8	20.0	5.5	21.2	22.2
Cycle Queue Clearance Time (g_c), s	3.9	25.3	25.9	9.4	27.3	5.0	5.6	18.8	20.0	5.5	21.2	22.2
Green Ratio (*g/C*)	0.04	0.46	0.46	0.08	0.50	0.55	0.05	0.26	0.26	0.05	0.26	0.26
Capacity (*c*), veh/h	225	920	904	278	1893	870	186	501	450	182	498	454
Volume-to-Capacity Ratio (*X*)	0.631	0.612	0.612	0.826	0.644	0.130	0.736	0.598	0.609	0.736	0.659	0.667
Back of Queue (*Q*), ft/ln (95 th percentile)	80.4	413.1	422.5	209.5	394.4	87.4	119	349.5	349.6	118.8	390.3	387.2
Back of Queue (*Q*), veh/ln (95 th percentile)	3.2	16.5	16.9	8.3	15.8	3.4	4.8	14.0	14.0	4.8	15.6	15.5
Queue Storage Ratio (*RQ*) (95 th percentile)	0.47	0.00	0.00	1.31	0.00	0.00	0.88	0.00	0.00	0.82	0.00	0.00
Uniform Delay (d_1), s/veh	68.3	20.0	20.9	65.7	16.9	15.9	67.7	40.7	44.6	67.8	41.7	45.1
Incremental Delay (d_2), s/veh	2.9	3.0	3.1	14.5	1.7	0.3	5.6	5.2	6.0	7.7	6.7	7.6
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	71.2	23.1	24.0	80.2	18.6	16.2	73.2	45.9	50.6	75.5	48.4	52.6
Level of Service (LOS)	E	C	C	F	B	B	E	D	D	E	D	D
Approach Delay, s/veh / LOS	28.9	C		27.5	C		53.0	D		54.8	D	
Intersection Delay, s/veh / LOS	37.0						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.43	B	2.57	C	2.60	C	2.60	C
Bicycle LOS Score / LOS	1.53	B	1.78	B	1.07	A	1.12	A

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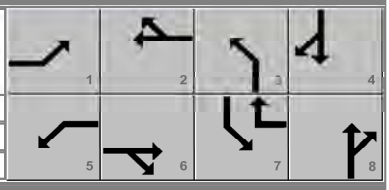
HCS7 Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	4:30 - 5:30 PM	PHF	0.97
Urban Street	US Route 14	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Main Street	File Name	PM No-Build.xus		
Project Description	PM No-Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	138	1030	53	223	1182	110	133	389	167	130	451	161

Signal Information												
Cycle, s	145.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On	Green	6.2	0.9	66.7	7.5	0.2	38.0		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.5	3.5	4.5	3.5	0.0	4.5		
				Red	1.0	1.0	1.5	1.0	0.0	1.5		



Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	1.000	1.000	1.000	0.992	1.000	0.984	1.000	1.000	1.000	1.000	1.000	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	0.971	1.000	1.000	0.971	0.952	1.000	0.971	1.000	1.000	0.971	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.952	0.000		0.952	0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.983	0.983		0.983	0.847		0.898	0.898		0.910	0.910
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Movement Saturation Flow Rate (s), veh/h	5271	3771	194	3487	3808	1585	3514	2533	1074	3514	2680	949
Proportion of Vehicles Arriving on Green (P)	0.04	0.61	0.46	0.08	0.66	0.50	0.05	0.35	0.26	0.05	0.35	0.26
Incremental Delay Factor (k)	0.11	0.50	0.50	0.28	0.50	0.50	0.11	0.50	0.50	0.15	0.50	0.50

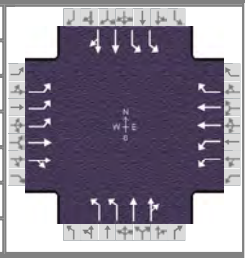
Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)	4.5	6.0	4.5	6.0	4.5	6.0	4.5	6.0
Green Ratio (g/C)	0.04	0.46	0.08	0.50	0.05	0.26	0.05	0.26
Permitted Saturation Flow Rate (s_p), veh/h/ln	0	0	0	0	0	0	0	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Permitted Service Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Permitted Queue Service Time (g_{ps}), s								
Time to First Blockage (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln				1585				
Protected Right Effective Green Time (g_R), s				7.5				

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.710	0.000	1.852	0.000	1.852	0.000	1.852	0.000
Pedestrian F_s / F_{delay}	0.000	0.122	0.000	0.117	0.000	0.147	0.000	0.147
Pedestrian M_{corner} / M_{cw}								
Bicycle c_b / d_b	920.03	21.14	994.17	18.34	527.03	39.32	524.60	39.45
Bicycle F_w / F_v	-3.64	1.04	-3.64	1.29	-3.64	0.59	-3.64	0.63

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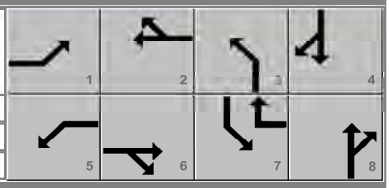
HCS7 Signalized Intersection Results Graphical Summary

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	4:30 - 5:30 PM	PHF	0.97
Urban Street	US Route 14	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Main Street	File Name	PM No-Build.xus		
Project Description	PM No-Build				

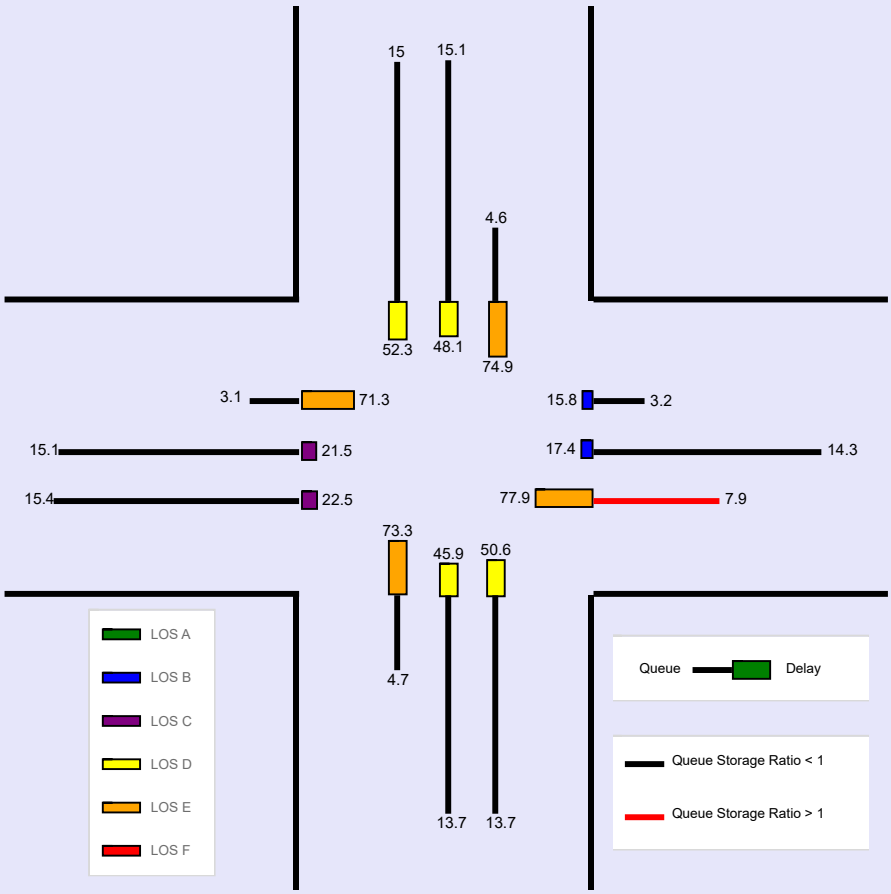


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	138	1030	53	223	1182	110	133	389	167	130	451	161

Signal Information					EB			WB			NB		
Cycle, s	145.0	Reference Phase	2										
Offset, s	0	Reference Point	End	Green	6.2	0.9		66.7	7.5	0.2	38.0		
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.5	3.5		4.5	3.5	0.0	4.5		
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	1.0		1.5	1.0	0.0	1.5		



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)	80.4	413.1	422.5	209.5	394.4	87.4	119	349.5	349.6	118.8	390.3	387.2
Back of Queue (*Q*), veh/ln (95 th percentile)	3.2	16.5	16.9	8.3	15.8	3.4	4.8	14.0	14.0	4.8	15.6	15.5
Queue Storage Ratio (*RQ*) (95 th percentile)	0.47	0.00	0.00	1.31	0.00	0.00	0.88	0.00	0.00	0.82	0.00	0.00
Control Delay (*d*), s/veh	71.2	23.1	24.0	80.2	18.6	16.2	73.2	45.9	50.6	75.5	48.4	52.6
Level of Service (LOS)	E	C	C	F	B	B	E	D	D	E	D	D
Approach Delay, s/veh / LOS	28.9	C		27.5	C		53.0	D		54.8	D	
Intersection Delay, s/veh / LOS	37.0						D					



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--- Messages ---

WARNING: One or more minor street movements was assigned an Arrival Type input value other than 3; this implies signal coordination on the minor street.

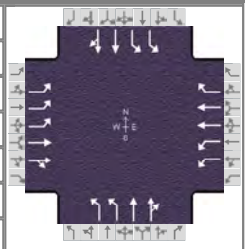
WARNING: Since queue spillover from turn lanes and spillback into upstream intersections is not accounted for in the HCM procedures, use of a simulation tool may be advised in situations where the Queue Storage Ratio exceeds 1.0.

--- Comments ---

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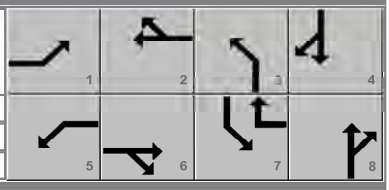
HCS7 Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	4:30 - 5:30 PM	PHF	0.97
Urban Street	US Route 14	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Main Street	File Name	PM Total.xus		
Project Description	PM Total				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	138	1037	60	223	1194	122	145	401	167	137	458	161

Signal Information									
Cycle, s	145.0	Reference Phase	2						
Offset, s	0	Reference Point	End	Green	6.2	0.9	66.4	7.8	0.4	37.9
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.5	3.5	4.5	3.5	0.0	4.5
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	1.0	1.5	1.0	0.0	1.5



Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	138	1037	60	223	1194	122	145	401	167	137	458	161
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	2000	1900	1900	2000	1900	1900	1900	1900	1900	1900	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	0	0		1	0	2	0	0		0	0	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	4	3	3	4	3	3	4	3	3	4	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	12.0	12.0		12.0	12.0	12.0	12.0	12.0		12.0	12.0	
Turn Bay Length, ft	170	0		160	0	0	135	0		145	0	
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	35	35	35	35	35	35

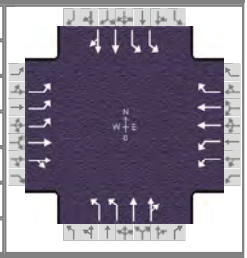
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	18.9	71.0	14.5	66.6	16.0	45.0	14.5	43.5
Yellow Change Interval (*Y*), s	3.5	4.5	3.5	4.5	3.5	4.5	3.5	4.5
Red Clearance Interval (R_c), s	1.0	1.5	1.0	1.5	1.0	1.5	1.0	1.5
Minimum Green (G_{min}), s	6	15	4	15	4	15	4	15
Start-Up Lost Time (*lt*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s	3.0	2.0	3.0	2.0	3.0	7.0	3.0	7.0
Recall Mode	Off	Min	Off	Min	Off	Off	Off	Off
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0	No	25	0	No	25	0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft	9.0	12	0	9.0	12	0	9.0	12	0	9.0	12	0
Street Width / Island / Curb	0	0	No	0	0	No	0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

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HCS7 Signalized Intersection Results Summary

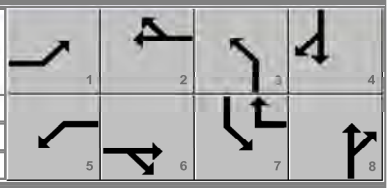
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	4:30 - 5:30 PM	PHF	0.97
Urban Street	US Route 14	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Main Street	File Name	PM Total.xus		
Project Description	PM Total				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	138	1037	60	223	1194	122	145	401	167	137	458	161

Signal Information									
Cycle, s	145.0	Reference Phase	2						
Offset, s	0	Reference Point	End						
Uncoordinated	No	Simult. Gap E/W	On						
Force Mode	Fixed	Simult. Gap N/S	On						

Green	6.2	0.9	66.4	7.8	0.4	37.9
Yellow	3.5	3.5	4.5	3.5	0.0	4.5
Red	1.0	1.0	1.5	1.0	0.0	1.5



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2	3	8	7	4
Case Number	2.0	4.0	2.0	3.0	2.0	4.0	2.0	4.0
Phase Duration, s	10.7	72.4	16.0	77.7	12.7	44.3	12.3	43.9
Change Period, (*Y+R c*), s	4.5	6.0	4.5	6.0	4.5	6.0	4.5	6.0
Max Allow Headway (*MAH*), s	4.0	0.0	4.0	0.0	4.0	9.2	4.0	9.2
Queue Clearance Time (*g s*), s	5.9		11.4		8.1	22.4	7.7	24.5
Green Extension Time (*g e*), s	0.4	0.0	0.1	0.0	0.1	15.1	0.1	13.4
Phase Call Probability	1.00		1.00		1.00	1.00	1.00	1.00
Max Out Probability	0.00		1.00		1.00	0.87	1.00	0.90

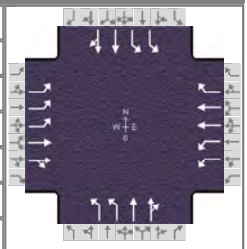
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	142	571	560	230	1231	126	149	306	280	141	332	306
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1757	2000	1961	1743	1904	1585	1757	1900	1711	1757	1900	1731
Queue Service Time (*g s*), s	3.9	26.0	26.7	9.4	28.0	5.6	6.1	19.3	20.4	5.7	21.5	22.5
Cycle Queue Clearance Time (*g c*), s	3.9	26.0	26.7	9.4	28.0	5.6	6.1	19.3	20.4	5.7	21.5	22.5
Green Ratio (*g/C*)	0.04	0.46	0.46	0.08	0.49	0.55	0.06	0.26	0.26	0.05	0.26	0.26
Capacity (*c*), veh/h	225	915	898	278	1884	869	199	502	452	189	496	452
Volume-to-Capacity Ratio (*X*)	0.632	0.624	0.624	0.828	0.654	0.145	0.752	0.610	0.620	0.746	0.669	0.676
Back of Queue (*Q*), ft/ln (95 th percentile)	80.5	425.1	435.5	210.6	404.8	97.8	131.2	357.9	357.2	126.4	396.7	393.2
Back of Queue (*Q*), veh/ln (95 th percentile)	3.2	17.0	17.4	8.4	16.2	3.8	5.2	14.3	14.3	5.1	15.9	15.7
Queue Storage Ratio (*RQ*) (95 th percentile)	0.47	0.00	0.00	1.32	0.00	0.00	0.97	0.00	0.00	0.87	0.00	0.00
Uniform Delay (*d 1*), s/veh	68.3	20.4	21.4	65.7	17.2	16.1	67.4	40.8	44.6	67.6	41.9	45.3
Incremental Delay (*d 2*), s/veh	2.9	3.2	3.3	15.4	1.8	0.3	7.0	5.4	6.3	9.0	7.0	7.9
Initial Queue Delay (*d 3*), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	71.2	23.6	24.7	81.2	19.0	16.4	74.4	46.3	50.9	76.6	48.9	53.2
Level of Service (LOS)	E	C	C	F	B	B	E	D	D	E	D	D
Approach Delay, s/veh / LOS	29.4	C		27.8	C		53.8	D		55.6	E	
Intersection Delay, s/veh / LOS	37.6						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.43	B	2.57	C	2.60	C	2.60	C
Bicycle LOS Score / LOS	1.54	B	1.80	B	1.09	A	1.13	A

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HCS7 Signalized Intersection Intermediate Values

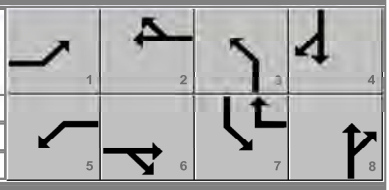
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	4:30 - 5:30 PM	PHF	0.97
Urban Street	US Route 14	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Main Street	File Name	PM Total.xus		
Project Description	PM Total				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	138	1037	60	223	1194	122	145	401	167	137	458	161

Signal Information			
Cycle, s	145.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	6.2	0.9	66.4	7.8	0.4	37.9	
Yellow	3.5	3.5	4.5	3.5	0.0	4.5	
Red	1.0	1.0	1.5	1.0	0.0	1.5	



Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	1.000	1.000	1.000	0.992	1.000	0.984	1.000	1.000	1.000	1.000	1.000	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	0.971	1.000	1.000	0.971	0.952	1.000	0.971	1.000	1.000	0.971	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.952	0.000		0.952	0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.981	0.981		0.983	0.847		0.900	0.900		0.911	0.911
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Movement Saturation Flow Rate (s), veh/h	5271	3744	217	3487	3808	1585	3514	2558	1053	3514	2692	939
Proportion of Vehicles Arriving on Green (P)	0.04	0.61	0.46	0.08	0.66	0.49	0.06	0.35	0.26	0.05	0.35	0.26
Incremental Delay Factor (k)	0.11	0.50	0.50	0.30	0.50	0.50	0.14	0.50	0.50	0.17	0.50	0.50

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)	4.5	6.0	4.5	6.0	4.5	6.0	4.5	6.0
Green Ratio (g/C)	0.04	0.46	0.08	0.49	0.06	0.26	0.05	0.26
Permitted Saturation Flow Rate (s_p), veh/h/ln	0	0	0	0	0	0	0	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Permitted Service Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Permitted Queue Service Time (g_{ps}), s								
Time to First Blockage (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln				1585				
Protected Right Effective Green Time (g_R), s				7.8				

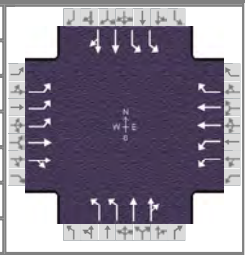
Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.710	0.000	1.852	0.000	1.852	0.000	1.852	0.000
Pedestrian F_s / F_{delay}	0.000	0.123	0.000	0.117	0.000	0.147	0.000	0.147
Pedestrian M_{corner} / M_{cw}								
Bicycle c_b / d_b	915.41	21.32	989.27	18.52	527.91	39.28	522.49	39.57
Bicycle F_w / F_v	-3.64	1.05	-3.64	1.31	-3.64	0.61	-3.64	0.64

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HCS7 Signalized Intersection Results Graphical Summary

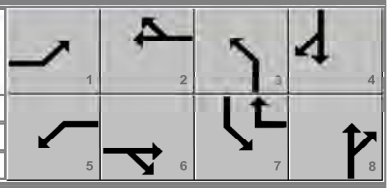
Appendix G

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	4:30 - 5:30 PM	PHF	0.97
Urban Street	US Route 14	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Main Street	File Name	PM Total.xus		
Project Description	PM Total				

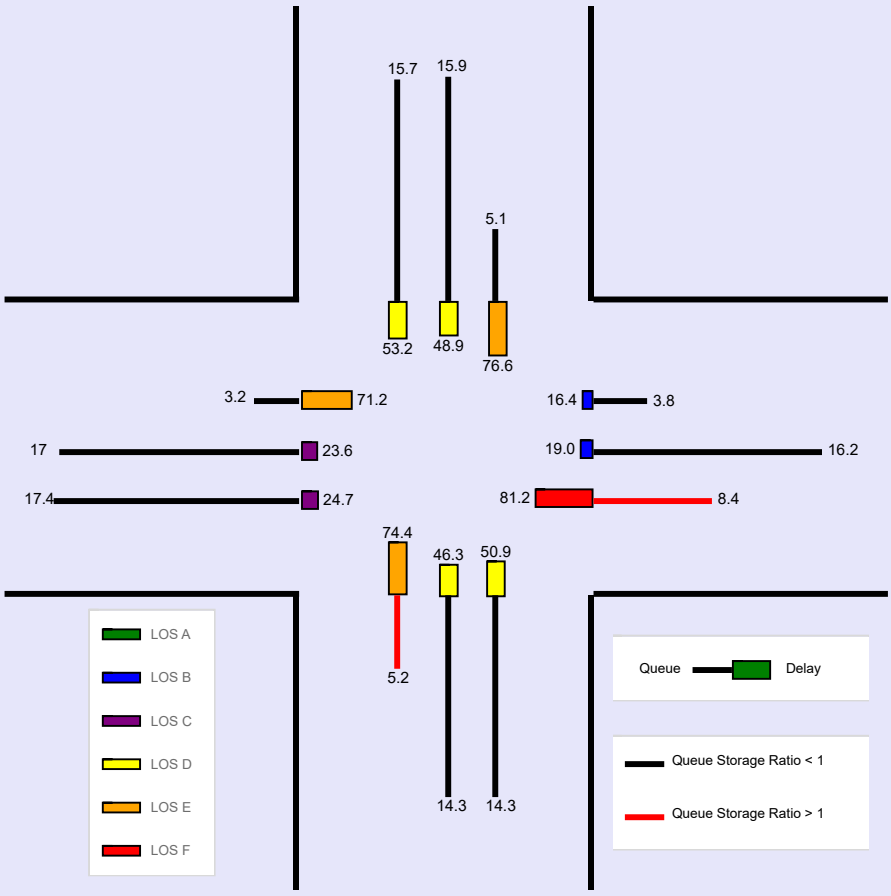


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	138	1037	60	223	1194	122	145	401	167	137	458	161

Signal Information												
Cycle, s	145.0	Reference Phase	2									
Offset, s	0	Reference Point	End	Green	6.2	0.9	66.4	7.8	0.4	37.9		
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.5	3.5	4.5	3.5	0.0	4.5		
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	1.0	1.5	1.0	0.0	1.5		



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)	80.5	425.1	435.5	210.6	404.8	97.8	131.2	357.9	357.2	126.4	396.7	393.2
Back of Queue (*Q*), veh/ln (95 th percentile)	3.2	17.0	17.4	8.4	16.2	3.8	5.2	14.3	14.3	5.1	15.9	15.7
Queue Storage Ratio (*RQ*) (95 th percentile)	0.47	0.00	0.00	1.32	0.00	0.00	0.97	0.00	0.00	0.87	0.00	0.00
Control Delay (*d*), s/veh	71.2	23.6	24.7	81.2	19.0	16.4	74.4	46.3	50.9	76.6	48.9	53.2
Level of Service (LOS)	E	C	C	F	B	B	E	D	D	E	D	D
Approach Delay, s/veh / LOS	29.4	C		27.8	C		53.8	D		55.6	E	
Intersection Delay, s/veh / LOS	37.6						D					



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--- Messages ---

WARNING: One or more minor street movements was assigned an Arrival Type input value other than 3; this implies signal coordination on the minor street.

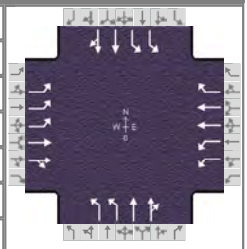
WARNING: Since queue spillover from turn lanes and spillback into upstream intersections is not accounted for in the HCM procedures, use of a simulation tool may be advised in situations where the Queue Storage Ratio exceeds 1.0.

--- Comments ---

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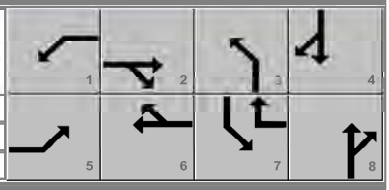
HCS7 Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	12:00 - 1:00 PM	PHF	0.95
Urban Street	US Route 14	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Main Street	File Name	SAT Existing.xus		
Project Description	SAT Existing				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	170	1123	71	267	1072	169	135	370	223	217	290	158

Signal Information					EB			WB			NB			SB		
Cycle, s	130.0	Reference Phase	2													
Offset, s	0	Reference Point	End	Green	6.7	1.2		59.5	7.3	2.5	27.3					
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.5	3.5		4.5	3.5	0.0	4.5					
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	1.0		1.5	1.0	0.0	1.5					



Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	170	1123	71	267	1072	169	135	370	223	217	290	158
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	2000	1900	1900	2000	1900	1900	1900	1900	1900	1900	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	0	0		1	0	0	0	1		0	0	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	1	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	4	3	3	4	3	3	4	3	3	4	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	12.0	12.0		12.0	12.0	12.0	12.0	12.0		12.0	12.0	
Turn Bay Length, ft	170	0		160	0	0	135	0		145	0	
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	35	35	35	35	35	35

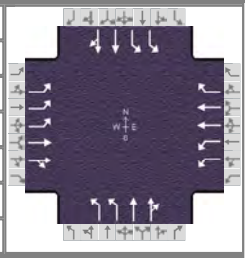
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	18.2	65.0	16.9	63.7	16.9	33.8	14.3	31.2
Yellow Change Interval (*Y*), s	3.5	4.5	3.5	4.5	3.5	4.5	3.5	4.5
Red Clearance Interval (R_c), s	1.0	1.5	1.0	1.5	1.0	1.5	1.0	1.5
Minimum Green (G_{min}), s	6	15	4	15	4	15	4	15
Start-Up Lost Time (*lt*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s	3.0	2.0	3.0	2.0	3.0	7.0	3.0	7.0
Recall Mode	Off	Min	Off	Min	Off	Off	Off	Off
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0	No	25	0	No	25	0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft	9.0	12	0	9.0	12	0	9.0	12	0	9.0	12	0
Street Width / Island / Curb	0	0	No	0	0	No	0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

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HCS7 Signalized Intersection Results Summary

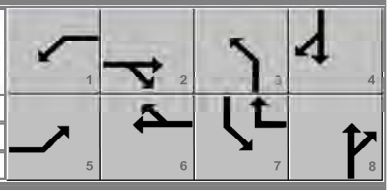
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	12:00 - 1:00 PM	PHF	0.95
Urban Street	US Route 14	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Main Street	File Name	SAT Existing.xus		
Project Description	SAT Existing				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	170	1123	71	267	1072	169	135	370	223	217	290	158

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	6.7	1.2	59.5	7.3	2.5	27.3	
Yellow	3.5	3.5	4.5	3.5	0.0	4.5	
Red	1.0	1.0	1.5	1.0	0.0	1.5	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	2.0	4.0	2.0	3.0	2.0	4.0	2.0	4.0
Phase Duration, s	11.2	65.5	16.9	71.1	11.8	33.3	14.3	35.8
Change Period, (*Y+R c*), s	4.5	6.0	4.5	6.0	4.5	6.0	4.5	6.0
Max Allow Headway (*MAH*), s	4.0	0.0	4.0	0.0	4.0	9.2	4.0	9.2
Queue Clearance Time (*g s*), s	6.3		12.3		7.2	24.2	10.4	17.3
Green Extension Time (*g e*), s	0.4	0.0	0.1	0.0	0.2	3.1	0.0	10.4
Phase Call Probability	1.00		1.00		0.99	1.00	1.00	1.00
Max Out Probability	0.04		1.00		0.33	1.00	1.00	0.93

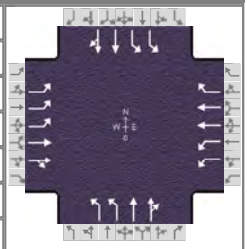
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	179	635	622	281	1128	178	142	331	294	228	247	225
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1757	2000	1958	1743	1904	1610	1757	1885	1646	1757	1900	1677
Queue Service Time (*g s*), s	4.3	27.9	28.7	10.3	21.1	6.8	5.2	21.4	22.2	8.4	14.2	15.3
Cycle Queue Clearance Time (*g c*), s	4.3	27.9	28.7	10.3	21.1	6.8	5.2	21.4	22.2	8.4	14.2	15.3
Green Ratio (*g/C*)	0.05	0.46	0.46	0.10	0.50	0.58	0.06	0.21	0.21	0.08	0.23	0.23
Capacity (*c*), veh/h	272	915	896	332	1908	928	198	397	346	265	436	385
Volume-to-Capacity Ratio (*X*)	0.658	0.694	0.695	0.847	0.591	0.192	0.718	0.834	0.848	0.862	0.566	0.584
Back of Queue (*Q*), ft/ln (85 th percentile)	86.4	390.6	402.5	194.1	263.7	105.3	101.1	377.1	362.8	170.2	240.1	241.5
Back of Queue (*Q*), veh/ln (85 th percentile)	3.5	15.6	16.1	7.7	10.5	4.2	4.0	15.0	14.5	6.8	9.6	9.7
Queue Storage Ratio (*RQ*) (85 th percentile)	0.51	0.00	0.00	1.21	0.00	0.00	0.75	0.00	0.00	1.17	0.00	0.00
Uniform Delay (*d 1*), s/veh	60.5	19.2	20.2	57.9	14.3	13.1	60.3	44.6	48.4	59.4	39.7	43.3
Incremental Delay (*d 2*), s/veh	2.7	4.3	4.4	17.1	1.4	0.5	4.8	18.3	21.9	24.0	5.2	6.4
Initial Queue Delay (*d 3*), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	63.2	23.5	24.7	74.9	15.6	13.6	65.1	62.9	70.3	83.5	44.9	49.7
Level of Service (LOS)	E	C	C	E	B	B	E	E	E	F	D	D
Approach Delay, s/veh / LOS	29.0	C		25.9	C		66.2	E		59.0	E	
Intersection Delay, s/veh / LOS	38.9						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.43	B	2.56	C	2.60	C	2.60	C
Bicycle LOS Score / LOS	1.67	B	1.80	B	1.12	A	1.07	A

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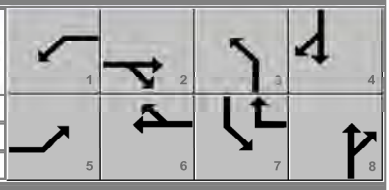
HCS7 Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	12:00 - 1:00 PM	PHF	0.95
Urban Street	US Route 14	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Main Street	File Name	SAT Existing.xus		
Project Description	SAT Existing				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	170	1123	71	267	1072	169	135	370	223	217	290	158

Signal Information												
Cycle, s	130.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On	Green	6.7	1.2	59.5	7.3	2.5	27.3		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.5	3.5	4.5	3.5	0.0	4.5		
				Red	1.0	1.0	1.5	1.0	0.0	1.5		



Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	1.000	1.000	1.000	0.992	1.000	1.000	1.000	0.992	1.000	1.000	1.000	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	0.971	1.000	1.000	0.971	0.952	1.000	0.971	1.000	1.000	0.971	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.952	0.000		0.952	0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.979	0.979		0.000	0.847		0.873	0.873		0.882	0.882
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			0.999			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Movement Saturation Flow Rate (s), veh/h	5271	3723	235	3487	3808	1610	3514	2215	1316	3514	2336	1241
Proportion of Vehicles Arriving on Green (P)	0.05	0.61	0.46	0.10	0.67	0.50	0.06	0.28	0.21	0.08	0.31	0.23
Incremental Delay Factor (k)	0.11	0.50	0.50	0.36	0.50	0.50	0.11	0.50	0.50	0.39	0.50	0.50

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)	4.5	6.0	4.5	6.0	4.5	6.0	4.5	6.0
Green Ratio (g/C)	0.05	0.46	0.10	0.50	0.06	0.21	0.08	0.23
Permitted Saturation Flow Rate (s_p), veh/h/ln	0	0	0	0	0	0	0	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Permitted Service Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Permitted Queue Service Time (g_{ps}), s								
Time to First Blockage (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln				1610				
Protected Right Effective Green Time (g_R), s				9.8				

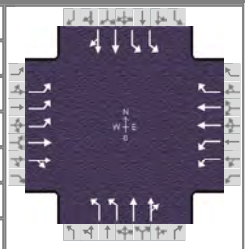
Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.710	0.000	1.852	0.000	1.852	0.000	1.852	0.000
Pedestrian F_s / F_{delay}	0.000	0.118	0.000	0.112	0.000	0.148	0.000	0.146
Pedestrian M_{corner} / M_{cw}								
Bicycle c_b / d_b	914.99	19.13	1002.24	16.18	420.75	40.53	458.90	38.59
Bicycle F_w / F_v	-3.64	1.18	-3.64	1.31	-3.64	0.63	-3.64	0.58

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HCS7 Signalized Intersection Results Graphical Summary

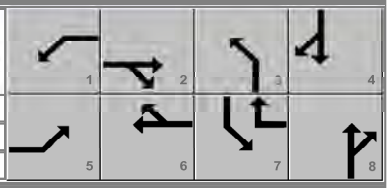
Appendix G

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	12:00 - 1:00 PM	PHF	0.95
Urban Street	US Route 14	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Main Street	File Name	SAT Existing.xus		
Project Description	SAT Existing				

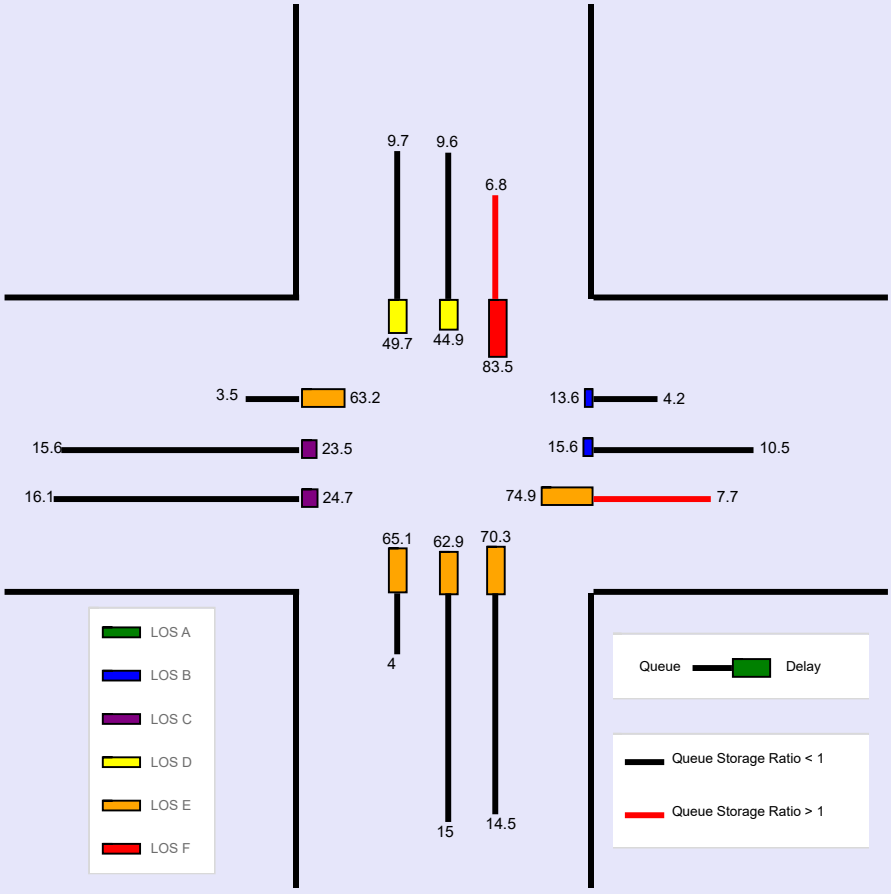


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	170	1123	71	267	1072	169	135	370	223	217	290	158

Signal Information					EB			WB			NB			SB		
Cycle, s	130.0	Reference Phase	2													
Offset, s	0	Reference Point	End	Green	6.7	1.2		59.5	7.3	2.5	27.3					
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.5	3.5		4.5	3.5	0.0	4.5					
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	1.0		1.5	1.0	0.0	1.5					



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (85 th percentile)	86.4	390.6	402.5	194.1	263.7	105.3	101.1	377.1	362.8	170.2	240.1	241.5
Back of Queue (*Q*), veh/ln (85 th percentile)	3.5	15.6	16.1	7.7	10.5	4.2	4.0	15.0	14.5	6.8	9.6	9.7
Queue Storage Ratio (*RQ*) (85 th percentile)	0.51	0.00	0.00	1.21	0.00	0.00	0.75	0.00	0.00	1.17	0.00	0.00
Control Delay (*d*), s/veh	63.2	23.5	24.7	74.9	15.6	13.6	65.1	62.9	70.3	83.5	44.9	49.7
Level of Service (LOS)	E	C	C	E	B	B	E	E	E	F	D	D
Approach Delay, s/veh / LOS	29.0	C		25.9	C		66.2	E		59.0	E	
Intersection Delay, s/veh / LOS	38.9						D					



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--- Messages ---

WARNING: One or more minor street movements was assigned an Arrival Type input value other than 3; this implies signal coordination on the minor street.

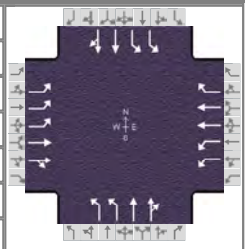
WARNING: Since queue spillover from turn lanes and spillback into upstream intersections is not accounted for in the HCM procedures, use of a simulation tool may be advised in situations where the Queue Storage Ratio exceeds 1.0.

--- Comments ---

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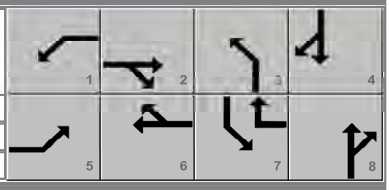
HCS7 Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	12:00 - 1:00 PM	PHF	0.95
Urban Street	US Route 14	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Main Street	File Name	SAT No-Build.xus		
Project Description	SAT No-Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	179	1180	75	281	1130	178	138	379	229	224	299	163

Signal Information												
Cycle, s	130.0	Reference Phase	2									
Offset, s	0	Reference Point	End	Green	7.0	1.3	59.0	7.4	2.4	27.5		
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.5	3.5	4.5	3.5	0.0	4.5		
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	1.0	1.5	1.0	0.0	1.5		



Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	179	1180	75	281	1130	178	138	379	229	224	299	163
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	2000	1900	1900	2000	1900	1900	1900	1900	1900	1900	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	0	0		1	0	0	0	1		0	0	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	1	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	4	3	3	4	3	3	4	3	3	4	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	12.0	12.0		12.0	12.0	12.0	12.0	12.0		12.0	12.0	
Turn Bay Length, ft	170	0		160	0	0	135	0		145	0	
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	35	35	35	35	35	35

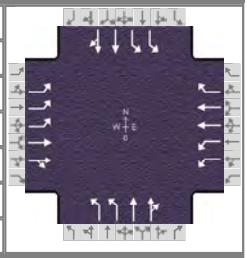
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	18.2	65.0	16.9	63.7	16.9	33.8	14.3	31.2
Yellow Change Interval (*Y*), s	3.5	4.5	3.5	4.5	3.5	4.5	3.5	4.5
Red Clearance Interval (R_c), s	1.0	1.5	1.0	1.5	1.0	1.5	1.0	1.5
Minimum Green (G_{min}), s	6	15	4	15	4	15	4	15
Start-Up Lost Time (*lt*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s	3.0	2.0	3.0	2.0	3.0	7.0	3.0	7.0
Recall Mode	Off	Min	Off	Min	Off	Off	Off	Off
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0	No	25	0	No	25	0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft	9.0	12	0	9.0	12	0	9.0	12	0	9.0	12	0
Street Width / Island / Curb	0	0	No	0	0	No	0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

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HCS7 Signalized Intersection Results Summary

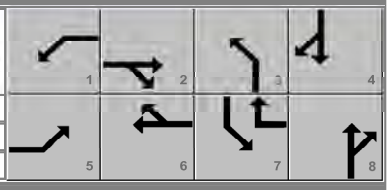
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	12:00 - 1:00 PM	PHF	0.95
Urban Street	US Route 14	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Main Street	File Name	SAT No-Build.xus		
Project Description	SAT No-Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	179	1180	75	281	1130	178	138	379	229	224	299	163

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	7.0	1.3	59.0	7.4	2.4	27.5	
Yellow	3.5	3.5	4.5	3.5	0.0	4.5	
Red	1.0	1.0	1.5	1.0	0.0	1.5	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	2.0	4.0	2.0	3.0	2.0	4.0	2.0	4.0
Phase Duration, s	11.5	65.0	17.2	70.8	11.9	33.5	14.3	35.8
Change Period, ($Y+R_c$), s	4.5	6.0	4.5	6.0	4.5	6.0	4.5	6.0
Max Allow Headway (*MAH*), s	4.0	0.0	4.0	0.0	4.0	9.2	4.0	9.2
Queue Clearance Time (g_s), s	6.6		12.9		7.3	24.9	10.6	17.9
Green Extension Time (g_e), s	0.4	0.0	0.0	0.0	0.2	2.6	0.0	10.0
Phase Call Probability	1.00		1.00		0.99	1.00	1.00	1.00
Max Out Probability	0.06		1.00		0.38	1.00	1.00	0.94

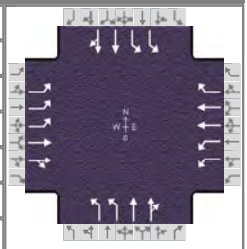
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	188	667	654	296	1189	187	145	339	301	236	255	232
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1757	2000	1957	1743	1904	1610	1757	1885	1646	1757	1900	1676
Queue Service Time (g_s), s	4.6	30.8	31.6	10.9	23.4	7.3	5.3	22.1	22.9	8.6	14.7	15.9
Cycle Queue Clearance Time (g_c), s	4.6	30.8	31.6	10.9	23.4	7.3	5.3	22.1	22.9	8.6	14.7	15.9
Green Ratio (*g/C*)	0.05	0.45	0.45	0.10	0.50	0.57	0.06	0.21	0.21	0.08	0.23	0.23
Capacity (*c*), veh/h	282	908	888	341	1897	924	201	398	348	265	436	385
Volume-to-Capacity Ratio (*X*)	0.668	0.735	0.737	0.866	0.627	0.203	0.722	0.852	0.865	0.890	0.584	0.602
Back of Queue (*Q*), ft/ln (85 th percentile)	90	432	444.7	206.8	289.4	111.2	102.9	391.3	375.9	179.7	248.7	249.5
Back of Queue (*Q*), veh/ln (85 th percentile)	3.6	17.3	17.8	8.2	11.6	4.4	4.1	15.5	15.0	7.2	9.9	10.0
Queue Storage Ratio (*RQ*) (85 th percentile)	0.53	0.00	0.00	1.29	0.00	0.00	0.76	0.00	0.00	1.24	0.00	0.00
Uniform Delay (d_1), s/veh	60.4	20.1	21.2	57.8	14.9	13.4	60.3	44.8	48.6	59.6	39.9	43.6
Incremental Delay (d_2), s/veh	2.7	5.3	5.4	20.2	1.6	0.5	4.8	20.0	23.8	28.8	5.6	6.8
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	63.1	25.4	26.6	78.0	16.4	13.9	65.1	64.7	72.3	88.4	45.5	50.4
Level of Service (LOS)	E	C	C	E	B	B	E	E	E	F	D	D
Approach Delay, s/veh / LOS	30.6	C		27.0	C		67.7	E		61.1	E	
Intersection Delay, s/veh / LOS	40.2						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.43	B	2.56	C	2.60	C	2.60	C
Bicycle LOS Score / LOS	1.73	B	1.87	B	1.14	A	1.08	A

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HCS7 Signalized Intersection Intermediate Values

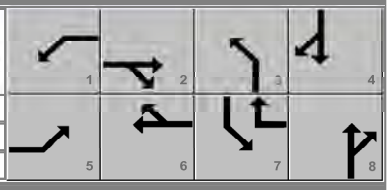
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	12:00 - 1:00 PM	PHF	0.95
Urban Street	US Route 14	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Main Street	File Name	SAT No-Build.xus		
Project Description	SAT No-Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	179	1180	75	281	1130	178	138	379	229	224	299	163

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	7.0	1.3	59.0	7.4	2.4	27.5	
Yellow	3.5	3.5	4.5	3.5	0.0	4.5	
Red	1.0	1.0	1.5	1.0	0.0	1.5	



Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	1.000	1.000	1.000	0.992	1.000	1.000	1.000	0.992	1.000	1.000	1.000	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	0.971	1.000	1.000	0.971	0.952	1.000	0.971	1.000	1.000	0.971	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.952	0.000		0.952	0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.979	0.979		0.000	0.847		0.873	0.873		0.882	0.882
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			0.999			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Movement Saturation Flow Rate (s), veh/h	5271	3721	236	3487	3808	1610	3514	2211	1319	3514	2334	1242
Proportion of Vehicles Arriving on Green (P)	0.05	0.61	0.45	0.10	0.66	0.50	0.06	0.28	0.21	0.08	0.31	0.23
Incremental Delay Factor (k)	0.11	0.50	0.50	0.40	0.50	0.50	0.11	0.50	0.50	0.41	0.50	0.50

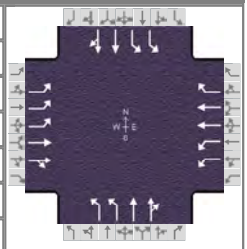
Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)	4.5	6.0	4.5	6.0	4.5	6.0	4.5	6.0
Green Ratio (g/C)	0.05	0.45	0.10	0.50	0.06	0.21	0.08	0.23
Permitted Saturation Flow Rate (s_p), veh/h/ln	0	0	0	0	0	0	0	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Permitted Service Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Permitted Queue Service Time (g_{ps}), s								
Time to First Blockage (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln				1610				
Protected Right Effective Green Time (g_R), s				9.8				

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.710	0.000	1.852	0.000	1.852	0.000	1.852	0.000
Pedestrian F_s / F_{delay}	0.000	0.119	0.000	0.112	0.000	0.148	0.000	0.146
Pedestrian M_{corner} / M_{cw}								
Bicycle c_b / d_b	907.67	19.39	996.57	16.36	422.65	40.43	458.92	38.59
Bicycle F_w / F_v	-3.64	1.25	-3.64	1.38	-3.64	0.65	-3.64	0.60

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HCS7 Signalized Intersection Results Graphical Summary

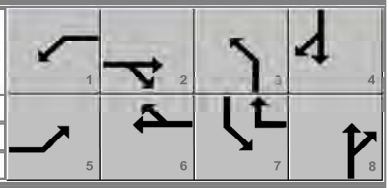
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	12:00 - 1:00 PM	PHF	0.95
Urban Street	US Route 14	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Main Street	File Name	SAT No-Build.xus		
Project Description	SAT No-Build				



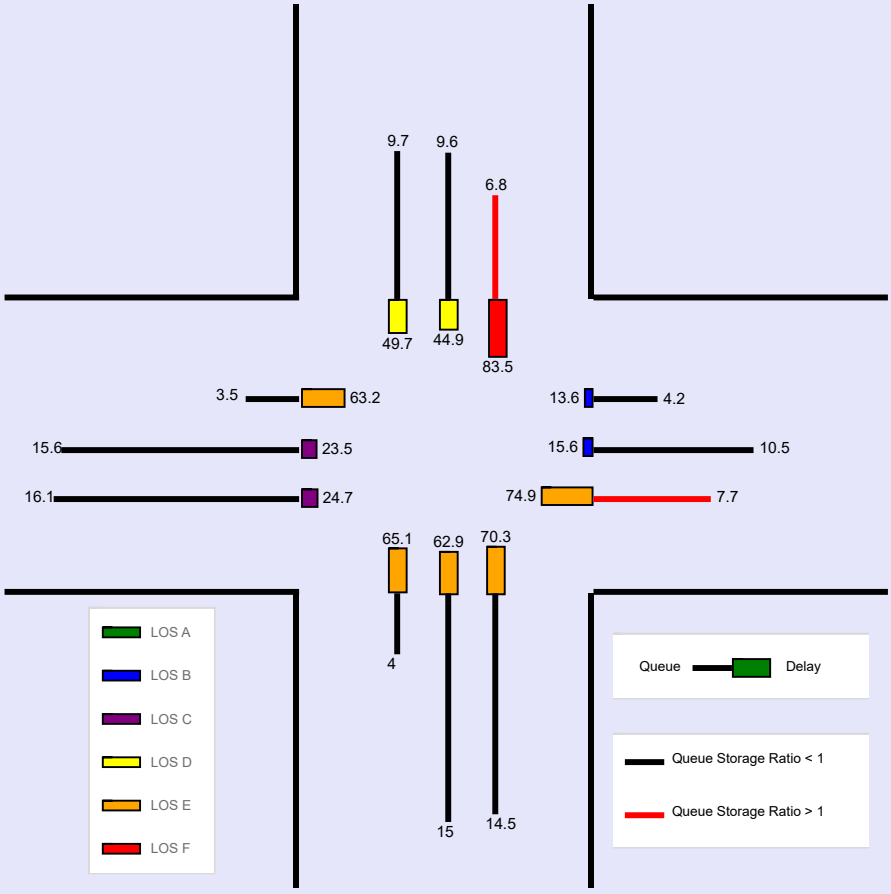
Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	179	1180	75	281	1130	178	138	379	229	224	299	163

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	7.0	1.3	59.0	7.4	2.4	27.5	
Yellow	3.5	3.5	4.5	3.5	0.0	4.5	
Red	1.0	1.0	1.5	1.0	0.0	1.5	



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (85 th percentile)	90	432	444.7	206.8	289.4	111.2	102.9	391.3	375.9	179.7	248.7	249.5
Back of Queue (*Q*), veh/ln (85 th percentile)	3.6	17.3	17.8	8.2	11.6	4.4	4.1	15.5	15.0	7.2	9.9	10.0
Queue Storage Ratio (*RQ*) (85 th percentile)	0.53	0.00	0.00	1.29	0.00	0.00	0.76	0.00	0.00	1.24	0.00	0.00
Control Delay (*d*), s/veh	63.1	25.4	26.6	78.0	16.4	13.9	65.1	64.7	72.3	88.4	45.5	50.4
Level of Service (LOS)	E	C	C	E	B	B	E	E	E	F	D	D
Approach Delay, s/veh / LOS	30.6	C		27.0	C		67.7	E		61.1	E	
Intersection Delay, s/veh / LOS	40.2						D					



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WARNING: One or more minor street movements was assigned an Arrival Type input value other than 3; this implies signal coordination on the minor street.

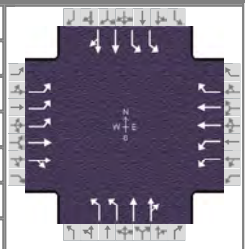
WARNING: Since queue spillover from turn lanes and spillback into upstream intersections is not accounted for in the HCM procedures, use of a simulation tool may be advised in situations where the Queue Storage Ratio exceeds 1.0.

--- Comments ---

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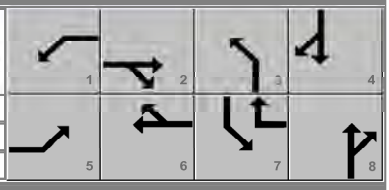
HCS7 Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	12:00 - 1:00 PM	PHF	0.95
Urban Street	US Route 14	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Main Street	File Name	SAT Total.xus		
Project Description	SAT Total				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	179	1188	83	281	1138	186	146	387	229	232	307	163

Signal Information												
Cycle, s	130.0	Reference Phase	2									
Offset, s	0	Reference Point	End	Green	6.9	1.2	59.0	7.8	2.0	27.5		
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.5	3.5	4.5	3.5	0.0	4.5		
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	1.0	1.5	1.0	0.0	1.5		



Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	179	1188	83	281	1138	186	146	387	229	232	307	163
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	2000	1900	1900	2000	1900	1900	1900	1900	1900	1900	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	0	0		1	0	0	0	1		0	0	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	1	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	4	3	3	4	3	3	4	3	3	4	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	12.0	12.0		12.0	12.0	12.0	12.0	12.0		12.0	12.0	
Turn Bay Length, ft	170	0		160	0	0	135	0		145	0	
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	35	35	35	35	35	35

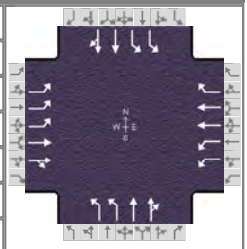
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	18.2	65.0	16.9	63.7	16.9	33.8	14.3	31.2
Yellow Change Interval (*Y*), s	3.5	4.5	3.5	4.5	3.5	4.5	3.5	4.5
Red Clearance Interval (R_c), s	1.0	1.5	1.0	1.5	1.0	1.5	1.0	1.5
Minimum Green (G_{min}), s	4	15	4	15	4	15	4	15
Start-Up Lost Time (*lt*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s	3.0	2.0	3.0	2.0	3.0	7.0	3.0	7.0
Recall Mode	Off	Min	Off	Min	Off	Off	Off	Off
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0	No	25	0	No	25	0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft	9.0	12	0	9.0	12	0	9.0	12	0	9.0	12	0
Street Width / Island / Curb	0	0	No	0	0	No	0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

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HCS7 Signalized Intersection Results Summary

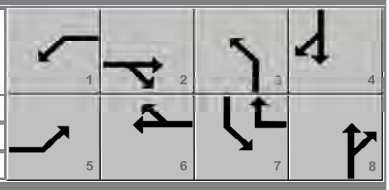
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	12:00 - 1:00 PM	PHF	0.95
Urban Street	US Route 14	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Main Street	File Name	SAT Total.xus		
Project Description	SAT Total				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	179	1188	83	281	1138	186	146	387	229	232	307	163

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	6.9	1.2	59.0	7.8	2.0	27.5	
Yellow	3.5	3.5	4.5	3.5	0.0	4.5	
Red	1.0	1.0	1.5	1.0	0.0	1.5	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	2.0	4.0	2.0	3.0	2.0	4.0	2.0	4.0
Phase Duration, s	11.4	65.0	17.2	70.7	12.3	33.5	14.3	35.6
Change Period, (*Y+R c*), s	4.5	6.0	4.5	6.0	4.5	6.0	4.5	6.0
Max Allow Headway (*MAH*), s	4.0	0.0	4.0	0.0	4.0	9.2	4.0	9.2
Queue Clearance Time (*g s*), s	6.6		12.9		7.6	25.2	11.0	18.2
Green Extension Time (*g e*), s	0.4	0.0	0.0	0.0	0.2	2.4	0.0	9.6
Phase Call Probability	1.00		1.00		1.00	1.00	1.00	1.00
Max Out Probability	0.06		1.00		0.51	1.00	1.00	0.96

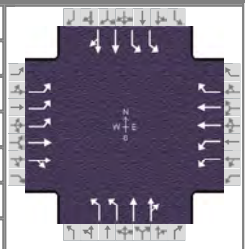
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	188	676	662	296	1198	196	154	344	305	244	259	236
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1757	2000	1954	1743	1904	1610	1757	1885	1648	1757	1900	1680
Queue Service Time (*g s*), s	4.6	31.6	32.5	10.9	23.7	7.7	5.6	22.5	23.2	9.0	15.1	16.2
Cycle Queue Clearance Time (*g c*), s	4.6	31.6	32.5	10.9	23.7	7.7	5.6	22.5	23.2	9.0	15.1	16.2
Green Ratio (*g/C*)	0.05	0.45	0.45	0.10	0.50	0.57	0.06	0.21	0.21	0.08	0.23	0.23
Capacity (*c*), veh/h	282	908	887	340	1896	923	210	399	349	265	432	382
Volume-to-Capacity Ratio (*X*)	0.669	0.744	0.747	0.870	0.632	0.212	0.732	0.861	0.873	0.922	0.600	0.617
Back of Queue (*Q*), ft/ln (85 th percentile)	90	442.8	456.6	207.7	292.8	115.9	107.6	398.9	382.8	191.4	255.2	255.2
Back of Queue (*Q*), veh/ln (85 th percentile)	3.6	17.7	18.3	8.2	11.7	4.6	4.3	15.8	15.3	7.7	10.2	10.2
Queue Storage Ratio (*RQ*) (85 th percentile)	0.53	0.00	0.00	1.30	0.00	0.00	0.80	0.00	0.00	1.32	0.00	0.00
Uniform Delay (*d 1*), s/veh	60.4	20.3	21.5	57.8	15.0	13.5	60.1	44.8	48.6	59.7	40.3	43.9
Incremental Delay (*d 2*), s/veh	2.7	5.5	5.7	20.8	1.6	0.5	4.9	20.9	24.8	35.2	6.0	7.3
Initial Queue Delay (*d 3*), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	63.1	25.8	27.2	78.7	16.6	14.0	65.0	65.8	73.4	94.9	46.3	51.1
Level of Service (LOS)	E	C	C	E	B	B	E	E	E	F	D	D
Approach Delay, s/veh / LOS	31.0	C		27.1	C		68.5	E		63.9	E	
Intersection Delay, s/veh / LOS	41.1						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.43	B	2.56	C	2.60	C	2.60	C
Bicycle LOS Score / LOS	1.75	B	1.88	B	1.15	A	1.10	A

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HCS7 Signalized Intersection Intermediate Values

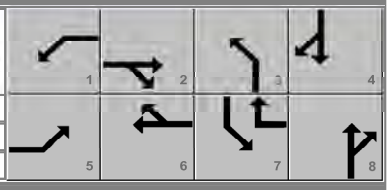
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	12:00 - 1:00 PM	PHF	0.95
Urban Street	US Route 14	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Main Street	File Name	SAT Total.xus		
Project Description	SAT Total				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	179	1188	83	281	1138	186	146	387	229	232	307	163

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	6.9	1.2	59.0	7.8	2.0	27.5	
Yellow	3.5	3.5	4.5	3.5	0.0	4.5	
Red	1.0	1.0	1.5	1.0	0.0	1.5	



Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	1.000	1.000	1.000	0.992	1.000	1.000	1.000	0.992	1.000	1.000	1.000	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	0.971	1.000	1.000	0.971	0.952	1.000	0.971	1.000	1.000	0.971	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.952	0.000		0.952	0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.977	0.977		0.000	0.847		0.874	0.874		0.884	0.884
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			0.999			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Movement Saturation Flow Rate (s), veh/h	5271	3696	258	3487	3808	1610	3514	2230	1304	3514	2357	1223
Proportion of Vehicles Arriving on Green (P)	0.05	0.61	0.45	0.10	0.66	0.50	0.06	0.28	0.21	0.08	0.30	0.23
Incremental Delay Factor (k)	0.11	0.50	0.50	0.40	0.50	0.50	0.11	0.50	0.50	0.44	0.50	0.50

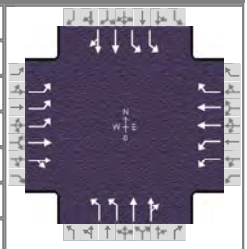
Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)	4.5	6.0	4.5	6.0	4.5	6.0	4.5	6.0
Green Ratio (g/C)	0.05	0.45	0.10	0.50	0.06	0.21	0.08	0.23
Permitted Saturation Flow Rate (s_p), veh/h/ln	0	0	0	0	0	0	0	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Permitted Service Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Permitted Queue Service Time (g_{ps}), s								
Time to First Blockage (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln				1610				
Protected Right Effective Green Time (g_R), s				9.8				

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.710	0.000	1.852	0.000	1.852	0.000	1.852	0.000
Pedestrian F_s / F_{delay}	0.000	0.119	0.000	0.112	0.000	0.148	0.000	0.147
Pedestrian M_{corner} / M_{cw}								
Bicycle c_b / d_b	907.67	19.39	995.77	16.39	423.47	40.39	454.81	38.80
Bicycle F_w / F_v	-3.64	1.26	-3.64	1.39	-3.64	0.66	-3.64	0.61

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HCS7 Signalized Intersection Results Graphical Summary

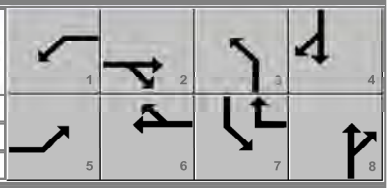
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	12:00 - 1:00 PM	PHF	0.95
Urban Street	US Route 14	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Main Street	File Name	SAT Total.xus		
Project Description	SAT Total				



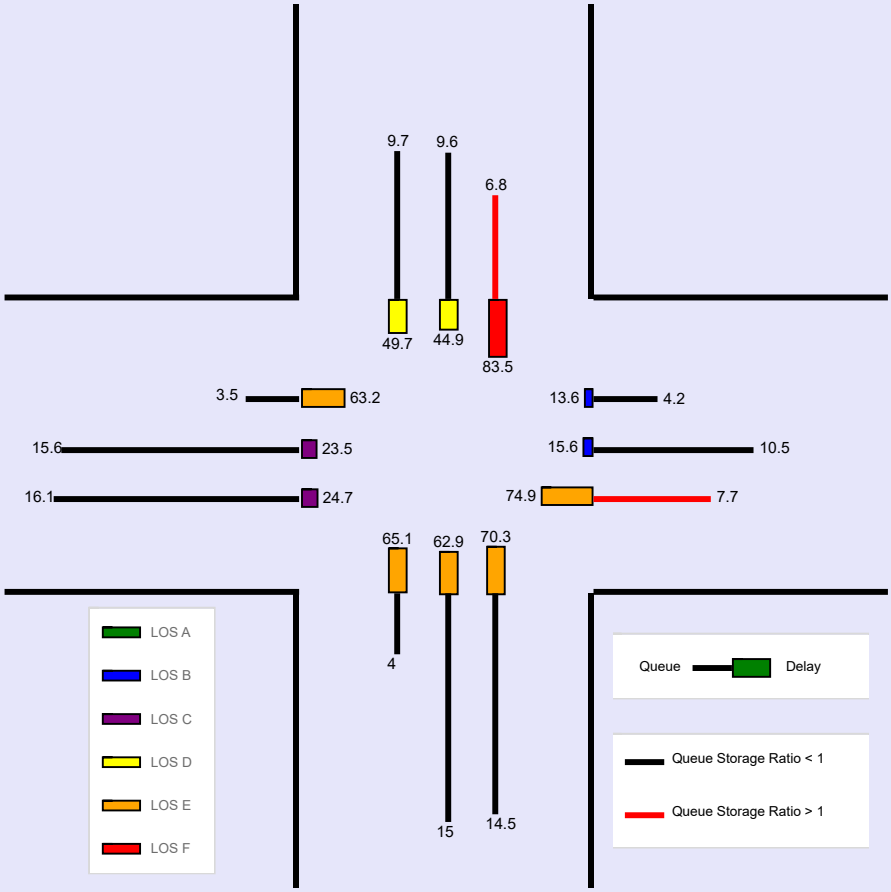
Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	179	1188	83	281	1138	186	146	387	229	232	307	163

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	6.9	1.2	59.0	7.8	2.0	27.5	
Yellow	3.5	3.5	4.5	3.5	0.0	4.5	
Red	1.0	1.0	1.5	1.0	0.0	1.5	



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (85 th percentile)	90	442.8	456.6	207.7	292.8	115.9	107.6	398.9	382.8	191.4	255.2	255.2
Back of Queue (*Q*), veh/ln (85 th percentile)	3.6	17.7	18.3	8.2	11.7	4.6	4.3	15.8	15.3	7.7	10.2	10.2
Queue Storage Ratio (*RQ*) (85 th percentile)	0.53	0.00	0.00	1.30	0.00	0.00	0.80	0.00	0.00	1.32	0.00	0.00
Control Delay (*d*), s/veh	63.1	25.8	27.2	78.7	16.6	14.0	65.0	65.8	73.4	94.9	46.3	51.1
Level of Service (LOS)	E	C	C	E	B	B	E	E	E	F	D	D
Approach Delay, s/veh / LOS	31.0		C	27.1		C	68.5		E	63.9		E
Intersection Delay, s/veh / LOS	41.1						D					



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--- Messages ---

WARNING: One or more minor street movements was assigned an Arrival Type input value other than 3; this implies signal coordination on the minor street.

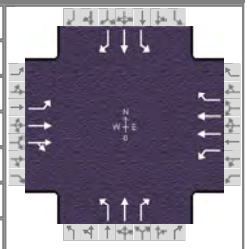
WARNING: Since queue spillover from turn lanes and spillback into upstream intersections is not accounted for in the HCM procedures, use of a simulation tool may be advised in situations where the Queue Storage Ratio exceeds 1.0.

--- Comments ---

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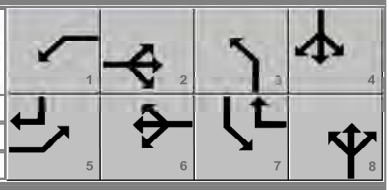
HCS7 Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	7:30 - 8:30 AM	PHF	0.87
Urban Street	US Route 14	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Teckler Boulevard	File Name	AM Existing.xus		
Project Description	AM Existing				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	66	816	11	73	526	36	17	25	64	59	30	57

Signal Information					EB			WB			NB			SB		
Cycle, s	130.0	Reference Phase	2													
Offset, s	0	Reference Point	End	Green	3.6	0.2		89.4	1.7	0.6	12.0					
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.5	0.0		4.5	3.5	3.5	4.5					
Force Mode	Fixed	Simult. Gap N/S	On	Red	0.0	0.0		1.5	0.0	0.0	1.5					



Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	66	816	11	73	526	36	17	25	64	59	30	57
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	3	0		1	0	0	0	0	2	0	0	2
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	4	3	3	4	3	3	3	3	3	3	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Turn Bay Length, ft	150	0		155	0	155	170	0	170	170	0	170
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	30	30	30	30	30	30

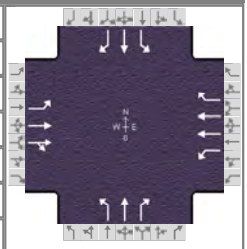
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	14.3	70.2	14.3	70.2	16.9	31.2	14.3	28.6
Yellow Change Interval (*Y*), s	3.5	4.5	3.5	4.5	3.5	4.5	3.5	4.5
Red Clearance Interval (R_c), s	0.0	1.5	0.0	1.5	0.0	1.5	0.0	1.5
Minimum Green (G_{min}), s	3	15	3	15	3	12	3	12
Start-Up Lost Time (*lt*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s	3.0	2.0	3.0	2.0	3.0	7.0	3.0	7.0
Recall Mode	Off	Min	Off	Min	Off	Off	Off	Off
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0	No	25	0	No	25	0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft	9.0	12	0	9.0	12	0	9.0	12	0	9.0	12	0
Street Width / Island / Curb	0	0	No	0	0	No	0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

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HCS7 Signalized Intersection Results Summary

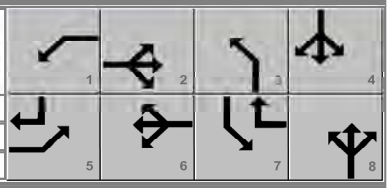
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	7:30 - 8:30 AM	PHF	0.87
Urban Street	US Route 14	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Teckler Boulevard	File Name	AM Existing.xus		
Project Description	AM Existing				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	66	816	11	73	526	36	17	25	64	59	30	57

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	3.6	0.2	89.4	1.7	0.6	12.0	
Yellow	3.5	0.0	4.5	3.5	3.5	4.5	
Red	0.0	0.0	1.5	0.0	0.0	1.5	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	1.1	4.0	1.1	3.0	1.1	3.0	1.1	3.0
Phase Duration, s	7.1	95.4	7.3	95.6	5.2	18.0	9.3	22.1
Change Period, ($Y+R_c$), s	3.5	6.0	3.5	6.0	3.5	6.0	3.5	6.0
Max Allow Headway (*MAH*), s	4.0	0.0	4.0	0.0	4.1	8.6	4.1	8.6
Queue Clearance Time (g_s), s	3.7		3.8		3.3	7.7	6.3	6.8
Green Extension Time (g_e), s	0.2	0.0	0.2	0.0	0.0	2.7	0.0	3.0
Phase Call Probability	0.94		0.95		0.51	1.00	0.91	1.00
Max Out Probability	0.00		0.00		0.00	0.04	0.64	0.01

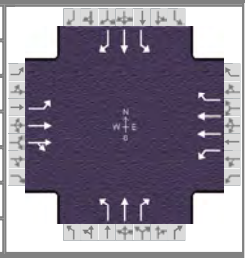
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	76	476	474	84	605	41	20	29	74	68	34	66
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1767	1900	1891	1795	1809	1610	1810	1900	1585	1810	1900	1585
Queue Service Time (g_s), s	1.7	4.1	4.4	1.8	2.3	0.9	1.3	1.8	5.7	4.3	2.1	4.8
Cycle Queue Clearance Time (g_c), s	1.7	4.1	4.4	1.8	2.3	0.9	1.3	1.8	5.7	4.3	2.1	4.8
Green Ratio (*g/C*)	0.72	0.69	0.69	0.72	0.69	0.73	0.11	0.09	0.09	0.15	0.12	0.15
Capacity (*c*), veh/h	635	1306	1300	497	2494	1182	207	175	146	246	236	241
Volume-to-Capacity Ratio (*X*)	0.119	0.365	0.365	0.169	0.242	0.035	0.094	0.164	0.503	0.276	0.146	0.272
Back of Queue (*Q*), ft/ln (95 th percentile)	26.7	63	66.6	29.2	33.6	13.2	26.6	43.6	22	89.7	49.3	95.1
Back of Queue (*Q*), veh/ln (95 th percentile)	1.0	2.5	2.7	1.2	1.3	0.5	1.1	1.7	0.9	3.6	2.0	3.7
Queue Storage Ratio (*RQ*) (95 th percentile)	0.18	0.00	0.00	0.19	0.00	0.09	0.16	0.00	0.13	0.53	0.00	0.56
Uniform Delay (d_1), s/veh	5.6	1.9	2.0	5.5	1.7	4.7	52.6	54.4	56.2	48.6	50.8	48.8
Incremental Delay (d_2), s/veh	0.1	0.8	0.8	0.2	0.2	0.1	0.2	2.0	11.8	0.6	1.3	2.8
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	5.7	2.7	2.8	5.7	2.0	4.8	52.8	56.4	68.0	49.2	52.1	51.6
Level of Service (LOS)	A	A	A	A	A	A	D	E	E	D	D	D
Approach Delay, s/veh / LOS	2.9	A		2.5	A		62.8	E		50.7	D	
Intersection Delay, s/veh / LOS	10.3						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.06	B	2.06	B	2.47	B	2.31	B
Bicycle LOS Score / LOS	1.33	A	1.09	A	0.69	A	0.76	A

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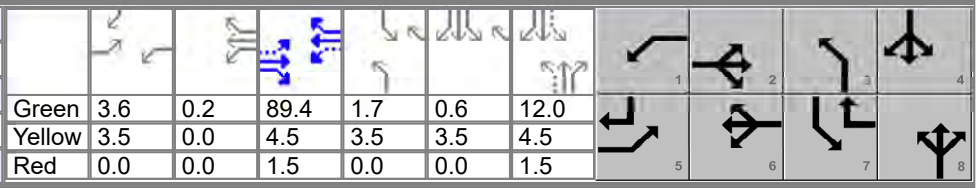
HCS7 Signalized Intersection Intermediate Values

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Jurisdiction	IDOT	Time Period	7:30 - 8:30 AM	PHF	0.87
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Signal Information												
Cycle, s	130.0	Reference Phase	2									
Offset, s	0	Reference Point	End	Green	3.6	0.2	89.4	1.7	0.6	12.0		
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.5	0.0	4.5	3.5	3.5	4.5		
Force Mode	Fixed	Simult. Gap N/S	On	Red	0.0	0.0	1.5	0.0	0.0	1.5		



Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.977	1.000	1.000	0.992	1.000	1.000	1.000	1.000	0.984	1.000	1.000	0.984
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	0.952	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.952	0.000		0.952	0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.995	0.995		0.000	0.847		0.000	0.847		0.000	0.847
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Movement Saturation Flow Rate (s), veh/h	1767	3741	50	1795	3618	1610	1810	1900	1585	1810	1900	1585
Proportion of Vehicles Arriving on Green (P)	0.03	0.92	0.69	0.03	0.92	0.69	0.01	0.09	0.09	0.04	0.12	0.12
Incremental Delay Factor (k)	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.50	0.50

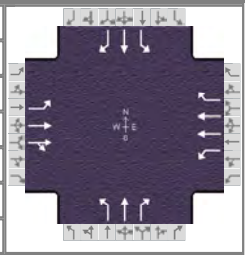
Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)	3.5	6.0	3.5	6.0	3.5	6.0	3.5	6.0
Green Ratio (g/C)	0.72	0.69	0.72	0.69	0.11	0.09	0.15	0.12
Permitted Saturation Flow Rate (s_p), veh/h/ln	809	0	595	0	1396	0	1403	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s	89.4	0.0	89.4	0.0	12.0	0.0	14.0	0.0
Permitted Service Time (g_u), s	85.3	0.0	85.0	0.0	12.0	0.0	10.2	0.0
Permitted Queue Service Time (g_{ps}), s	0.4		0.7		0.0		0.2	
Time to First Blockage (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln				1610		0		1585
Protected Right Effective Green Time (g_R), s				5.8		0.0		3.6

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.389	0.000	1.389	0.000	1.710	0.000	1.557	0.000
Pedestrian F_s / F_{delay}	0.000	0.074	0.000	0.074	0.000	0.160	0.000	0.157
Pedestrian M_{corner} / M_{cw}								
Bicycle c_b / d_b	1375.10	6.35	1378.55	6.28	184.56	53.56	248.10	49.87
Bicycle F_w / F_v	-3.64	0.85	-3.64	0.60	-3.64	0.20	-3.64	0.28

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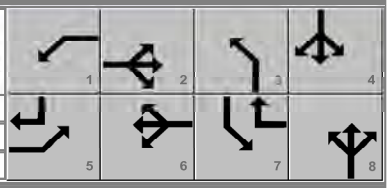
HCS7 Signalized Intersection Results Graphical Summary

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	7:30 - 8:30 AM	PHF	0.87
Urban Street	US Route 14	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Teckler Boulevard	File Name	AM Existing.xus		
Project Description	AM Existing				

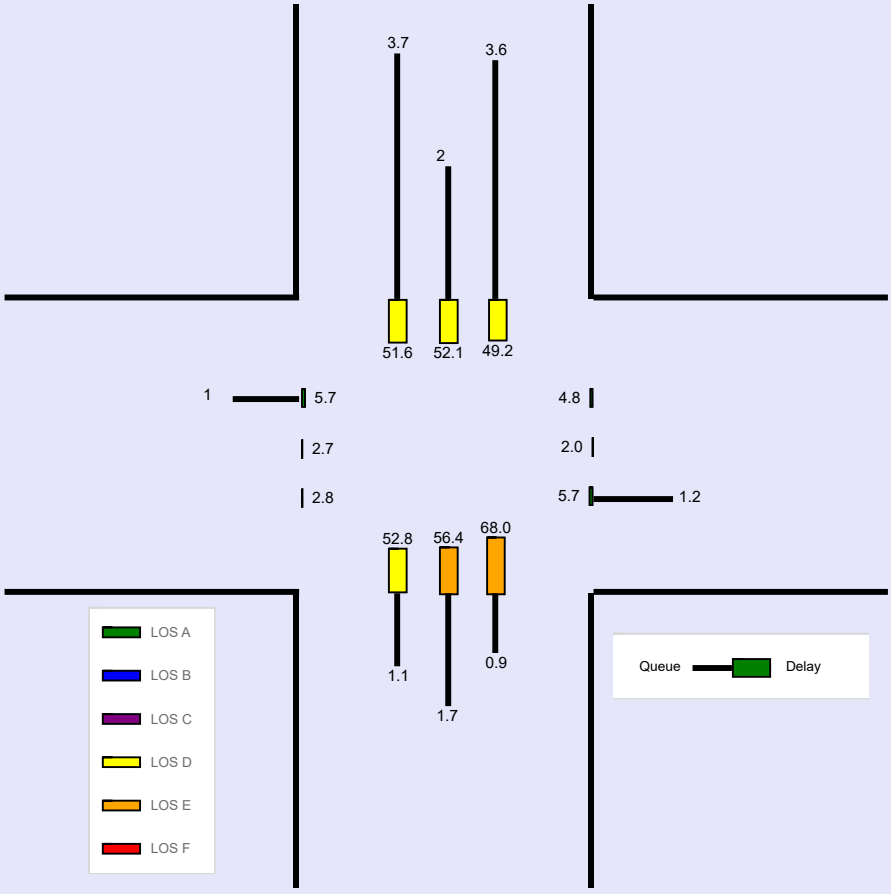


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	66	816	11	73	526	36	17	25	64	59	30	57

Signal Information												
Cycle, s	130.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
				Green	3.6	0.2	89.4	1.7	0.6	12.0		
				Yellow	3.5	0.0	4.5	3.5	3.5	4.5		
				Red	0.0	0.0	1.5	0.0	0.0	1.5		



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)	26.7	63	66.6	29.2	33.6	13.2	26.6	43.6	22	89.7	49.3	95.1
Back of Queue (*Q*), veh/ln (95 th percentile)	1.0	2.5	2.7	1.2	1.3	0.5	1.1	1.7	0.9	3.6	2.0	3.7
Queue Storage Ratio (*RQ*) (95 th percentile)	0.18	0.00	0.00	0.19	0.00	0.09	0.16	0.00	0.13	0.53	0.00	0.56
Control Delay (*d*), s/veh	5.7	2.7	2.8	5.7	2.0	4.8	52.8	56.4	68.0	49.2	52.1	51.6
Level of Service (LOS)	A	A	A	A	A	A	D	E	E	D	D	D
Approach Delay, s/veh / LOS	2.9	A		2.5	A		62.8	E		50.7	D	
Intersection Delay, s/veh / LOS	10.3						B					



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--- Messages ---

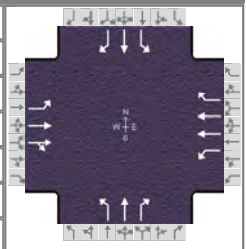
No errors or warnings exist.

--- Comments ---

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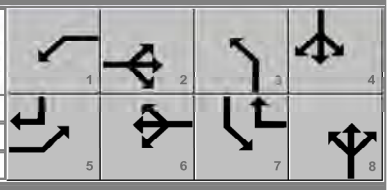
HCS7 Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	7:30 - 8:30 AM	PHF	0.87
Urban Street	US Route 14	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Teckler Boulevard	File Name	AM No-Build.xus		
Project Description	AM No-Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	70	861	12	77	552	38	17	26	66	61	31	58

Signal Information					EB			WB			NB			SB		
Cycle, s	130.0	Reference Phase	2													
Offset, s	0	Reference Point	End	Green	3.8	0.2		89.1	1.7	0.8	12.0					
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.5	0.0		4.5	3.5	3.5	4.5					
Force Mode	Fixed	Simult. Gap N/S	On	Red	0.0	0.0		1.5	0.0	0.0	1.5					



Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	70	861	12	77	552	38	17	26	66	61	31	58
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	3	0		1	0	0	0	0	2	0	0	2
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	4	3	3	4	3	3	3	3	3	3	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Turn Bay Length, ft	150	0		155	0	155	170	0	170	170	0	170
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	30	30	30	30	30	30

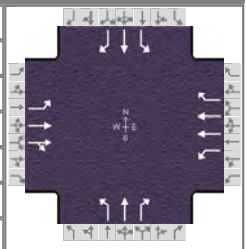
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	14.3	70.2	14.3	70.2	16.9	31.2	14.3	28.6
Yellow Change Interval (*Y*), s	3.5	4.5	3.5	4.5	3.5	4.5	3.5	4.5
Red Clearance Interval (R_c), s	0.0	1.5	0.0	1.5	0.0	1.5	0.0	1.5
Minimum Green (G_{min}), s	3	15	3	15	3	12	3	12
Start-Up Lost Time (*lt*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s	3.0	2.0	3.0	2.0	3.0	7.0	3.0	7.0
Recall Mode	Off	Min	Off	Min	Off	Off	Off	Off
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0	No	25	0	No	25	0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft	9.0	12	0	9.0	12	0	9.0	12	0	9.0	12	0
Street Width / Island / Curb	0	0	No	0	0	No	0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

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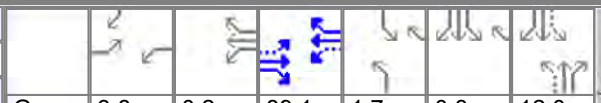
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	7:30 - 8:30 AM	PHF	0.87
Urban Street	US Route 14	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Teckler Boulevard	File Name	AM No-Build.xus		
Project Description	AM No-Build				

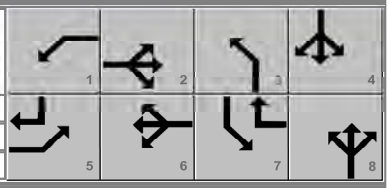


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	70	861	12	77	552	38	17	26	66	61	31	58

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	3.8	0.2	89.1	1.7	0.8	12.0
Yellow	3.5	0.0	4.5	3.5	3.5	4.5
Red	0.0	0.0	1.5	0.0	0.0	1.5



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	1.1	4.0	1.1	3.0	1.1	3.0	1.1	3.0
Phase Duration, s	7.3	95.1	7.5	95.3	5.2	18.0	9.5	22.3
Change Period, ($Y+R_c$), s	3.5	6.0	3.5	6.0	3.5	6.0	3.5	6.0
Max Allow Headway (*MAH*), s	4.0	0.0	4.0	0.0	4.1	8.6	4.1	8.6
Queue Clearance Time (g_s), s	3.8		3.9		3.3	7.9	6.4	6.8
Green Extension Time (g_e), s	0.2	0.0	0.2	0.0	0.0	2.8	0.1	3.1
Phase Call Probability	0.95		0.96		0.51	1.00	0.92	1.00
Max Out Probability	0.00		0.00		0.00	0.05	0.75	0.01

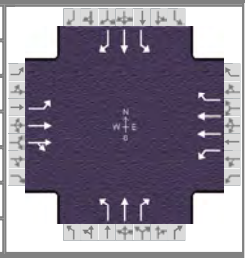
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	80	503	500	89	634	44	20	30	76	70	36	67
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1767	1900	1891	1795	1809	1610	1810	1900	1585	1810	1900	1585
Queue Service Time (g_s), s	1.8	4.6	4.9	1.9	2.5	1.0	1.3	1.9	5.9	4.4	2.2	4.8
Cycle Queue Clearance Time (g_c), s	1.8	4.6	4.9	1.9	2.5	1.0	1.3	1.9	5.9	4.4	2.2	4.8
Green Ratio (*g/C*)	0.71	0.69	0.69	0.72	0.69	0.73	0.11	0.09	0.09	0.15	0.13	0.15
Capacity (*c*), veh/h	619	1302	1295	477	2484	1180	207	175	146	248	238	245
Volume-to-Capacity Ratio (*X*)	0.130	0.386	0.386	0.186	0.255	0.037	0.094	0.170	0.519	0.283	0.150	0.272
Back of Queue (*Q*), ft/ln (95 th percentile)	28.7	69.7	73.8	31.2	37	14	26.6	45.5	132.2	92.7	50.8	96.4
Back of Queue (*Q*), veh/ln (95 th percentile)	1.1	2.8	3.0	1.2	1.5	0.6	1.1	1.8	5.2	3.7	2.0	3.8
Queue Storage Ratio (*RQ*) (95 th percentile)	0.19	0.00	0.00	0.20	0.00	0.09	0.16	0.00	0.78	0.55	0.00	0.57
Uniform Delay (d_1), s/veh	5.7	2.0	2.1	5.6	1.8	4.8	52.6	54.4	56.2	48.5	50.7	48.5
Incremental Delay (d_2), s/veh	0.1	0.9	0.9	0.2	0.2	0.1	0.2	2.1	12.5	0.6	1.3	2.7
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	5.7	2.8	3.0	5.8	2.1	4.8	52.8	56.5	68.8	49.1	52.0	51.3
Level of Service (LOS)	A	A	A	A	A	A	D	E	E	D	D	D
Approach Delay, s/veh / LOS	3.1	A		2.7	A		63.4	E		50.5	D	
Intersection Delay, s/veh / LOS	10.3						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.06	B	2.06	B	2.47	B	2.31	B
Bicycle LOS Score / LOS	1.38	A	1.12	A	0.69	A	0.77	A

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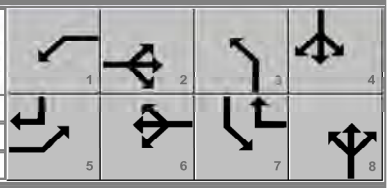
HCS7 Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	7:30 - 8:30 AM	PHF	0.87
Urban Street	US Route 14	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Teckler Boulevard	File Name	AM No-Build.xus		
Project Description	AM No-Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	70	861	12	77	552	38	17	26	66	61	31	58

Signal Information												
Cycle, s	130.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On	Green	3.8	0.2	89.1	1.7	0.8	12.0		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.5	0.0	4.5	3.5	3.5	4.5		
				Red	0.0	0.0	1.5	0.0	0.0	1.5		



Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.977	1.000	1.000	0.992	1.000	1.000	1.000	1.000	0.984	1.000	1.000	0.984
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	0.952	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.952	0.000		0.952	0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.995	0.995		0.000	0.847		0.000	0.847		0.000	0.847
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Movement Saturation Flow Rate (s), veh/h	1767	3739	52	1795	3618	1610	1810	1900	1585	1810	1900	1585
Proportion of Vehicles Arriving on Green (P)	0.03	0.91	0.69	0.03	0.92	0.69	0.01	0.09	0.09	0.05	0.13	0.13
Incremental Delay Factor (k)	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.50	0.50

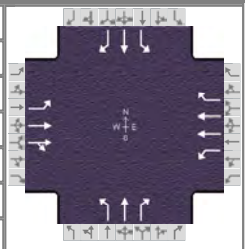
Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)	3.5	6.0	3.5	6.0	3.5	6.0	3.5	6.0
Green Ratio (g/C)	0.71	0.69	0.72	0.69	0.11	0.09	0.15	0.13
Permitted Saturation Flow Rate (s_p), veh/h/ln	787	0	566	0	1394	0	1402	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s	89.1	0.0	89.1	0.0	12.0	0.0	14.0	0.0
Permitted Service Time (g_u), s	84.7	0.0	84.1	0.0	12.0	0.0	10.1	0.0
Permitted Queue Service Time (g_{ps}), s	0.5		0.9		0.0		0.2	
Time to First Blockage (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln				1610		0		1585
Protected Right Effective Green Time (g_R), s				6.0		0.0		3.8

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.389	0.000	1.389	0.000	1.710	0.000	1.557	0.000
Pedestrian F_s / F_{delay}	0.000	0.075	0.000	0.074	0.000	0.160	0.000	0.157
Pedestrian M_{corner} / M_{cw}								
Bicycle c_b / d_b	1370.01	6.45	1373.36	6.38	184.57	53.56	250.84	49.72
Bicycle F_w / F_v	-3.64	0.89	-3.64	0.63	-3.64	0.21	-3.64	0.28

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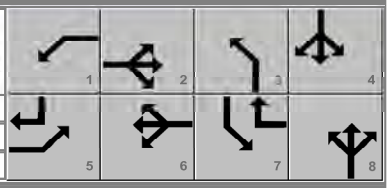
HCS7 Signalized Intersection Results Graphical Summary

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	7:30 - 8:30 AM	PHF	0.87
Urban Street	US Route 14	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Teckler Boulevard	File Name	AM No-Build.xus		
Project Description	AM No-Build				

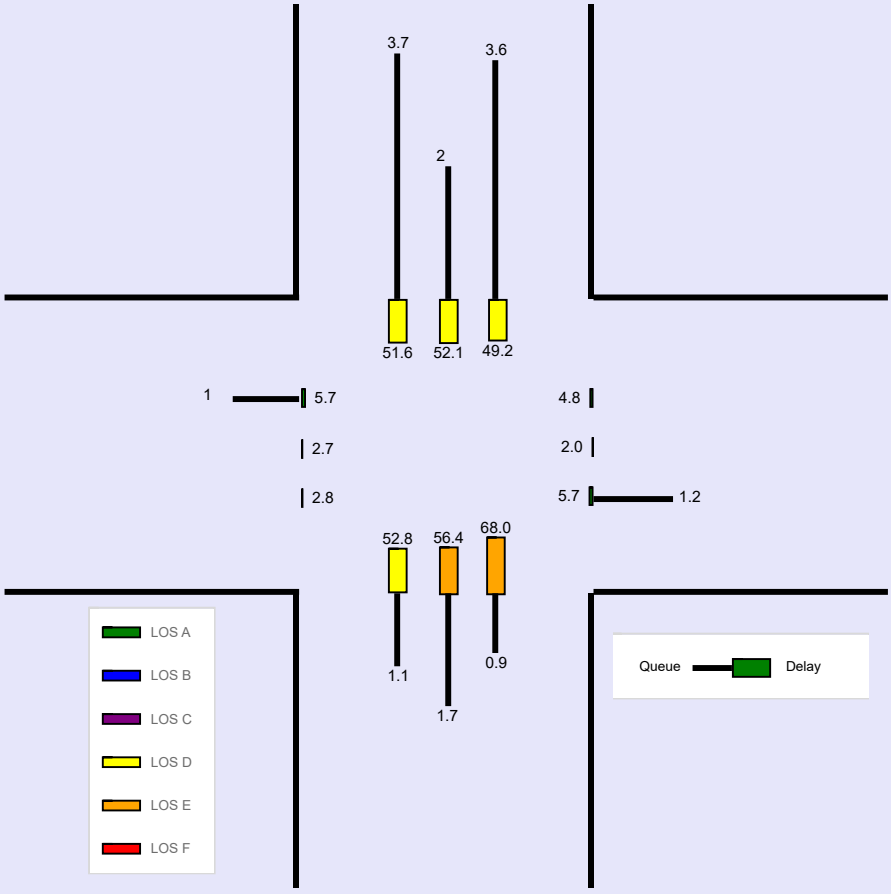


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	70	861	12	77	552	38	17	26	66	61	31	58

Signal Information												
Cycle, s	130.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
				Green	3.8	0.2	89.1	1.7	0.8	12.0		
				Yellow	3.5	0.0	4.5	3.5	3.5	4.5		
				Red	0.0	0.0	1.5	0.0	0.0	1.5		



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)	28.7	69.7	73.8	31.2	37	14	26.6	45.5	132.2	92.7	50.8	96.4
Back of Queue (*Q*), veh/ln (95 th percentile)	1.1	2.8	3.0	1.2	1.5	0.6	1.1	1.8	5.2	3.7	2.0	3.8
Queue Storage Ratio (*RQ*) (95 th percentile)	0.19	0.00	0.00	0.20	0.00	0.09	0.16	0.00	0.78	0.55	0.00	0.57
Control Delay (*d*), s/veh	5.7	2.8	3.0	5.8	2.1	4.8	52.8	56.5	68.8	49.1	52.0	51.3
Level of Service (LOS)	A	A	A	A	A	A	D	E	E	D	D	D
Approach Delay, s/veh / LOS	3.1	A		2.7	A		63.4	E		50.5	D	
Intersection Delay, s/veh / LOS	10.3						B					



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--- Messages ---

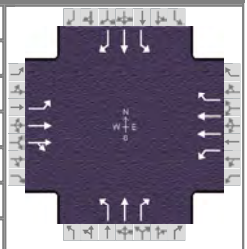
No errors or warnings exist.

--- Comments ---

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HCS7 Signalized Intersection Input Data

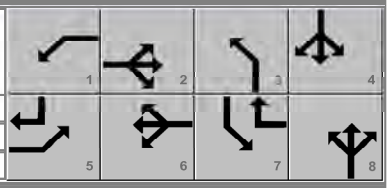
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	7:30 - 8:30 AM	PHF	0.87
Urban Street	US Route 14	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Teckler Boulevard	File Name	AM Total.xus		
Project Description	AM Total				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	76	861	12	77	552	44	17	28	66	84	36	76

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.1	87.0	1.7	2.7	12.0	0.0	
Yellow	3.5	4.5	3.5	3.5	4.5	0.0	
Red	0.0	1.5	0.0	0.0	1.5	0.0	



Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	76	861	12	77	552	44	17	28	66	84	36	76
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	3	0		1	0	0	0	0	2	0	0	2
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	4	3	3	4	3	3	3	3	3	3	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Turn Bay Length, ft	150	0		155	0	155	170	0	170	170	0	170
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	30	30	30	30	30	30

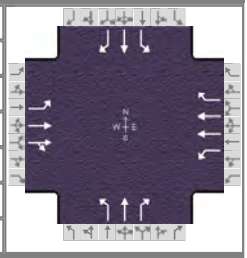
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	14.3	70.2	14.3	70.2	16.9	31.2	14.3	28.6
Yellow Change Interval (*Y*), s	3.5	4.5	3.5	4.5	3.5	4.5	3.5	4.5
Red Clearance Interval (R_c), s	0.0	1.5	0.0	1.5	0.0	1.5	0.0	1.5
Minimum Green (G_{min}), s	3	15	3	15	3	12	3	12
Start-Up Lost Time (*lt*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s	3.0	2.0	3.0	2.0	3.0	7.0	3.0	7.0
Recall Mode	Off	Min	Off	Min	Off	Off	Off	Off
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0	No	25	0	No	25	0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft	9.0	12	0	9.0	12	0	9.0	12	0	9.0	12	0
Street Width / Island / Curb	0	0	No	0	0	No	0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

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HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	7:30 - 8:30 AM	PHF	0.87
Urban Street	US Route 14	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Teckler Boulevard	File Name	AM Total.xus		
Project Description	AM Total				

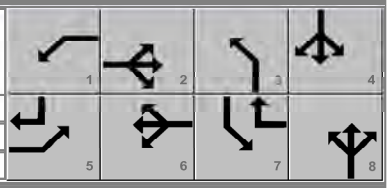


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	76	861	12	77	552	44	17	28	66	84	36	76

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	4.1	87.0	1.7	2.7	12.0	0.0
Yellow	3.5	4.5	3.5	3.5	4.5	0.0
Red	0.0	1.5	0.0	0.0	1.5	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	1.1	4.0	1.1	3.0	1.1	3.0	1.1	3.0
Phase Duration, s	7.6	93.0	7.6	93.0	5.2	18.0	11.4	24.2
Change Period, (*Y+R c*), s	3.5	6.0	3.5	6.0	3.5	6.0	3.5	6.0
Max Allow Headway (*MAH*), s	4.0	0.0	4.0	0.0	4.1	8.6	4.1	8.6
Queue Clearance Time (*g s*), s	4.0		4.0		3.3	7.9	8.1	8.3
Green Extension Time (*g e*), s	0.2	0.0	0.2	0.0	0.0	3.1	0.1	3.5
Phase Call Probability	0.96		0.96		0.51	1.00	0.97	1.00
Max Out Probability	0.00		0.00		0.00	0.09	1.00	0.03

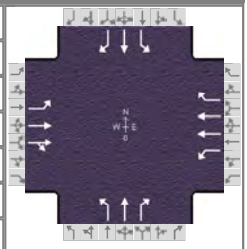
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	87	503	500	89	634	51	20	32	76	97	41	87
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1767	1900	1891	1795	1809	1610	1810	1900	1585	1810	1900	1585
Queue Service Time (*g s*), s	2.0	5.7	6.0	2.0	3.2	1.1	1.3	2.0	5.9	6.1	2.5	6.3
Cycle Queue Clearance Time (*g c*), s	2.0	5.7	6.0	2.0	3.2	1.1	1.3	2.0	5.9	6.1	2.5	6.3
Green Ratio (*g/C*)	0.70	0.67	0.67	0.70	0.67	0.73	0.11	0.09	0.09	0.17	0.14	0.17
Capacity (*c*), veh/h	606	1272	1266	464	2422	1176	207	175	146	273	267	272
Volume-to-Capacity Ratio (*X*)	0.144	0.395	0.395	0.191	0.262	0.043	0.095	0.184	0.519	0.354	0.155	0.321
Back of Queue (*Q*), ft/ln (95 th percentile)	33.3	85.5	89.6	33.5	47.4	16.5	26.6	49.1	132.1	127.2	57.7	124.9
Back of Queue (*Q*), veh/ln (95 th percentile)	1.3	3.4	3.6	1.3	1.9	0.7	1.1	2.0	5.2	5.1	2.3	4.9
Queue Storage Ratio (*RQ*) (95 th percentile)	0.22	0.00	0.00	0.22	0.00	0.11	0.16	0.00	0.78	0.75	0.00	0.73
Uniform Delay (*d 1*), s/veh	6.2	2.6	2.8	6.3	2.5	4.9	52.6	54.5	56.2	47.5	49.1	47.2
Incremental Delay (*d 2*), s/veh	0.1	0.9	0.9	0.2	0.3	0.1	0.2	2.3	12.5	0.8	1.2	3.1
Initial Queue Delay (*d 3*), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	6.3	3.5	3.7	6.5	2.7	5.0	52.8	56.8	68.8	48.3	50.4	50.3
Level of Service (LOS)	A	A	A	A	A	A	D	E	E	D	D	D
Approach Delay, s/veh / LOS	3.8	A		3.3	A		63.3	E		49.5	D	
Intersection Delay, s/veh / LOS	11.7						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.07	B	2.07	B	2.47	B	2.31	B
Bicycle LOS Score / LOS	1.39	A	1.13	A	0.70	A	0.86	A

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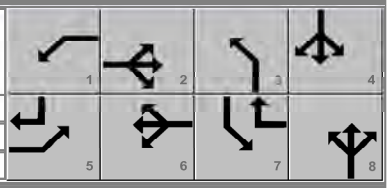
HCS7 Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	7:30 - 8:30 AM	PHF	0.87
Urban Street	US Route 14	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Teckler Boulevard	File Name	AM Total.xus		
Project Description	AM Total				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	76	861	12	77	552	44	17	28	66	84	36	76

Signal Information												
Cycle, s	130.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On	Green	4.1	87.0	1.7	2.7	12.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.5	4.5	3.5	3.5	4.5	0.0		
				Red	0.0	1.5	0.0	0.0	1.5	0.0		



Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.977	1.000	1.000	0.992	1.000	1.000	1.000	1.000	0.984	1.000	1.000	0.984
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	0.952	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.952	0.000		0.952	0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.995	0.995		0.000	0.847		0.000	0.847		0.000	0.847
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Movement Saturation Flow Rate (s), veh/h	1767	3739	52	1795	3618	1610	1810	1900	1585	1810	1900	1585
Proportion of Vehicles Arriving on Green (P)	0.03	0.89	0.67	0.03	0.89	0.67	0.01	0.09	0.09	0.06	0.14	0.14
Incremental Delay Factor (k)	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.50	0.50

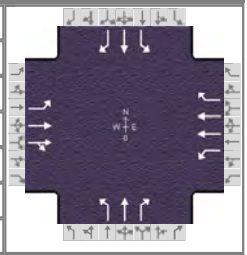
Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)	3.5	6.0	3.5	6.0	3.5	6.0	3.5	6.0
Green Ratio (g/C)	0.70	0.67	0.70	0.67	0.11	0.09	0.17	0.14
Permitted Saturation Flow Rate (s_p), veh/h/ln	787	0	566	0	1387	0	1399	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s	87.0	0.0	87.0	0.0	12.0	0.0	14.0	0.0
Permitted Service Time (g_u), s	81.8	0.0	81.0	0.0	12.0	0.0	10.0	0.0
Permitted Queue Service Time (g_{ps}), s	0.7		1.1		0.0		0.3	
Time to First Blockage (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln				1610		0		1585
Protected Right Effective Green Time (g_R), s				7.9		0.0		4.1

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.389	0.000	1.389	0.000	1.710	0.000	1.557	0.000
Pedestrian F_s / F_{delay}	0.000	0.079	0.000	0.079	0.000	0.160	0.000	0.155
Pedestrian M_{corner} / M_{cw}								
Bicycle c_b / d_b	1338.97	7.10	1339.05	7.10	184.60	53.55	280.54	48.04
Bicycle F_w / F_v	-3.64	0.90	-3.64	0.64	-3.64	0.21	-3.64	0.37

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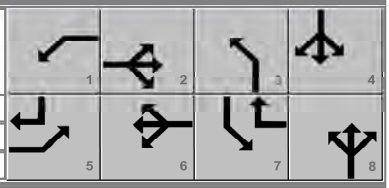
HCS7 Signalized Intersection Results Graphical Summary

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	7:30 - 8:30 AM	PHF	0.87
Urban Street	US Route 14	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Teckler Boulevard	File Name	AM Total.xus		
Project Description	AM Total				

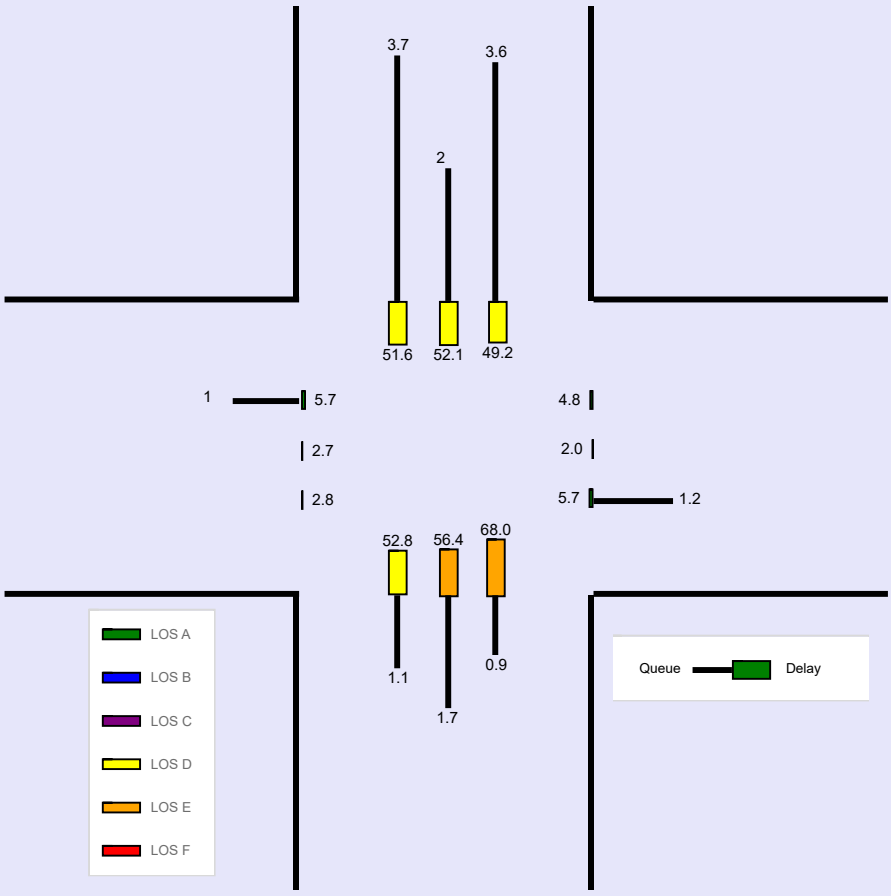


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	76	861	12	77	552	44	17	28	66	84	36	76

Signal Information												
Cycle, s	130.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On	Green	4.1	87.0	1.7	2.7	12.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.5	4.5	3.5	3.5	4.5	0.0		
				Red	0.0	1.5	0.0	0.0	1.5	0.0		



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)	33.3	85.5	89.6	33.5	47.4	16.5	26.6	49.1	132.1	127.2	57.7	124.9
Back of Queue (*Q*), veh/ln (95 th percentile)	1.3	3.4	3.6	1.3	1.9	0.7	1.1	2.0	5.2	5.1	2.3	4.9
Queue Storage Ratio (*RQ*) (95 th percentile)	0.22	0.00	0.00	0.22	0.00	0.11	0.16	0.00	0.78	0.75	0.00	0.73
Control Delay (*d*), s/veh	6.3	3.5	3.7	6.5	2.7	5.0	52.8	56.8	68.8	48.3	50.4	50.3
Level of Service (LOS)	A	A	A	A	A	A	D	E	E	D	D	D
Approach Delay, s/veh / LOS	3.8	A		3.3	A		63.3	E		49.5	D	
Intersection Delay, s/veh / LOS	11.7						B					



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--- Messages ---

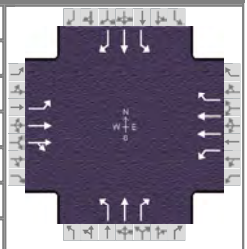
No errors or warnings exist.

--- Comments ---

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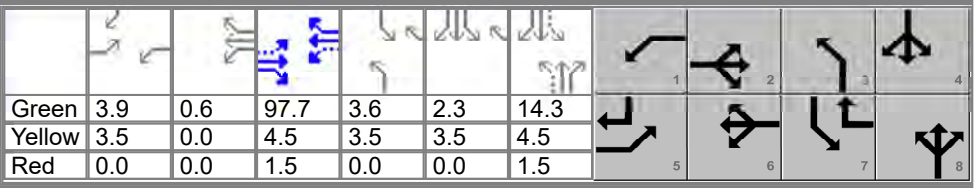
HCS7 Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	4:30 - 5:30 PM	PHF	0.95
Urban Street	US Route 14	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Teckler Boulevard	File Name	PM Existing.xus		
Project Description	PM Existing				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	73	967	27	91	1226	90	35	37	92	102	45	136

Signal Information												
Cycle, s	145.0	Reference Phase	2									
Offset, s	0	Reference Point	End	Green	3.9	0.6	97.7	3.6	2.3	14.3		
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.5	0.0	4.5	3.5	3.5	4.5		
Force Mode	Fixed	Simult. Gap N/S	On	Red	0.0	0.0	1.5	0.0	0.0	1.5		



Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	73	967	27	91	1226	90	35	37	92	102	45	136
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	2000	1900	1900	2000	1900	1900	1900	1900	1900	1900	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	0	0		0	0	0	0	0	0	0	0	0
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	4	3	3	4	3	3	3	3	3	3	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Turn Bay Length, ft	150	0		155	0	155	170	0	170	170	0	170
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	30	30	30	30	30	30

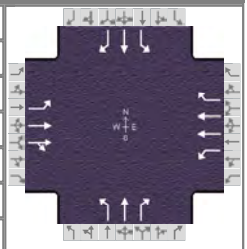
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	14.5	84.1	14.5	84.1	14.5	31.9	14.5	31.9
Yellow Change Interval (*Y*), s	3.5	4.5	3.5	4.5	3.5	4.5	3.5	4.5
Red Clearance Interval (R_c), s	0.0	1.5	0.0	1.5	0.0	1.5	0.0	1.5
Minimum Green (G_{min}), s	3	15	3	15	3	12	3	12
Start-Up Lost Time (*lt*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s	3.0	2.0	3.0	2.0	3.0	7.0	3.0	7.0
Recall Mode	Off	Min	Off	Min	Off	Off	Off	Off
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0	No	25	0	No	25	0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft	9.0	12	0	9.0	12	0	9.0	12	0	9.0	12	0
Street Width / Island / Curb	0	0	No	0	0	No	0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

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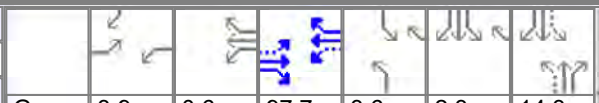
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	4:30 - 5:30 PM	PHF	0.95
Urban Street	US Route 14	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Teckler Boulevard	File Name	PM Existing.xus		
Project Description	PM Existing				

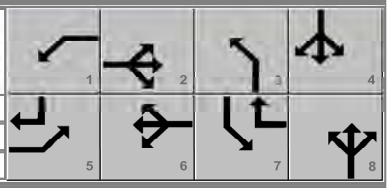


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	73	967	27	91	1226	90	35	37	92	102	45	136

Signal Information			
Cycle, s	145.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	3.9	0.6	97.7	3.6	2.3	14.3	
Yellow	3.5	0.0	4.5	3.5	3.5	4.5	
Red	0.0	0.0	1.5	0.0	0.0	1.5	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	1.1	4.0	1.1	3.0	1.1	3.0	1.1	3.0
Phase Duration, s	7.4	103.7	8.0	104.3	7.1	20.3	12.9	26.2
Change Period, (*Y+R c*), s	3.5	6.0	3.5	6.0	3.5	6.0	3.5	6.0
Max Allow Headway (*MAH*), s	4.0	0.0	4.0	0.0	4.1	8.6	4.1	8.6
Queue Clearance Time (*g s*), s	3.9		4.4		4.6	10.4	9.5	13.8
Green Extension Time (*g e*), s	0.2	0.0	0.2	0.0	0.0	4.0	0.0	4.3
Phase Call Probability	0.95		0.98		0.77	1.00	0.99	1.00
Max Out Probability	0.00		0.00		0.05	0.26	1.00	0.18

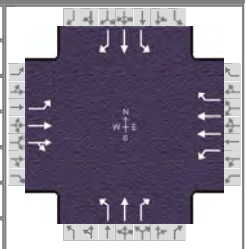
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	77	526	521	96	1291	95	37	39	97	107	47	143
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	2000	1981	1810	1904	1610	1810	1900	1610	1810	1900	1610
Queue Service Time (*g s*), s	1.9	6.0	6.6	2.4	8.6	2.3	2.6	2.7	8.4	7.5	3.2	11.8
Cycle Queue Clearance Time (*g c*), s	1.9	6.0	6.6	2.4	8.6	2.3	2.6	2.7	8.4	7.5	3.2	11.8
Green Ratio (*g/C*)	0.70	0.67	0.67	0.71	0.68	0.74	0.12	0.10	0.10	0.18	0.14	0.17
Capacity (*c*), veh/h	361	1348	1335	450	2582	1197	231	188	159	279	264	267
Volume-to-Capacity Ratio (*X*)	0.213	0.390	0.390	0.213	0.500	0.079	0.159	0.207	0.608	0.385	0.179	0.536
Back of Queue (*Q*), ft/ln (95 th percentile)	33.4	94.7	104.5	40.9	105.9	34.6	55.7	65.6	186.8	158.1	74.4	229.5
Back of Queue (*Q*), veh/ln (95 th percentile)	1.3	3.8	4.2	1.6	4.2	1.4	2.2	2.6	7.5	6.3	3.0	9.2
Queue Storage Ratio (*RQ*) (95 th percentile)	0.22	0.00	0.00	0.26	0.00	0.22	0.33	0.00	1.10	0.93	0.00	1.35
Uniform Delay (*d 1*), s/veh	7.2	2.7	3.1	6.8	2.7	5.1	56.8	60.1	62.6	52.2	55.1	55.3
Incremental Delay (*d 2*), s/veh	0.3	0.9	0.9	0.2	0.7	0.1	0.3	2.5	16.1	0.9	1.5	7.5
Initial Queue Delay (*d 3*), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	7.5	3.6	3.9	7.1	3.3	5.2	57.1	62.6	78.7	53.1	56.6	62.8
Level of Service (LOS)	A	A	A	A	A	A	E	E	E	D	E	E
Approach Delay, s/veh / LOS	4.0	A		3.7	A		70.5	E		58.3	E	
Intersection Delay, s/veh / LOS	12.9						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.07	B	2.07	B	2.47	B	2.32	B
Bicycle LOS Score / LOS	1.41	A	1.71	B	0.77	A	0.98	A

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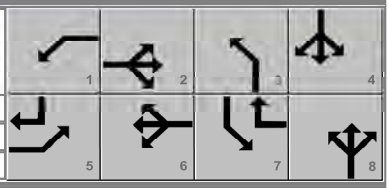
HCS7 Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	4:30 - 5:30 PM	PHF	0.95
Urban Street	US Route 14	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Teckler Boulevard	File Name	PM Existing.xus		
Project Description	PM Existing				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	73	967	27	91	1226	90	35	37	92	102	45	136

Signal Information												
Cycle, s	145.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On	Green	3.9	0.6	97.7	3.6	2.3	14.3		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.5	0.0	4.5	3.5	3.5	4.5		
				Red	0.0	0.0	1.5	0.0	0.0	1.5		



Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	0.952	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.952	0.000		0.952	0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.990	0.990		0.000	0.847		0.000	0.847		0.000	0.847
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Movement Saturation Flow Rate (s), veh/h	1810	3872	108	1810	3808	1610	1810	1900	1610	1810	1900	1610
Proportion of Vehicles Arriving on Green (P)	0.03	0.90	0.67	0.03	0.90	0.68	0.02	0.10	0.10	0.07	0.14	0.14
Incremental Delay Factor (k)	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.50	0.50

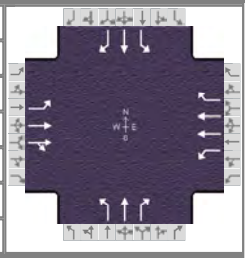
Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)	3.5	6.0	3.5	6.0	3.5	6.0	3.5	6.0
Green Ratio (g/C)	0.70	0.67	0.71	0.68	0.12	0.10	0.18	0.14
Permitted Saturation Flow Rate (s_p), veh/h/ln	434	0	548	0	1380	0	1390	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s	97.7	0.0	97.7	0.0	14.3	0.0	16.3	0.0
Permitted Service Time (g_u), s	87.7	0.0	91.1	0.0	14.3	0.0	11.6	0.0
Permitted Queue Service Time (g_{ps}), s	2.1		1.4		0.0		0.4	
Time to First Blockage (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln				1610		0		1610
Protected Right Effective Green Time (g_R), s				9.4		0.0		3.9

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.389	0.000	1.389	0.000	1.710	0.000	1.557	0.000
Pedestrian F_s / F_{delay}	0.000	0.082	0.000	0.081	0.000	0.163	0.000	0.160
Pedestrian M_{corner} / M_{cw}								
Bicycle c_b / d_b	1347.70	7.71	1356.15	7.51	197.71	58.87	278.03	53.74
Bicycle F_w / F_v	-3.64	0.93	-3.64	1.22	-3.64	0.28	-3.64	0.49

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HCS7 Signalized Intersection Results Graphical Summary

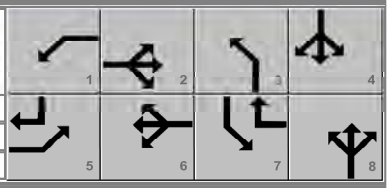
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	4:30 - 5:30 PM	PHF	0.95
Urban Street	US Route 14	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Teckler Boulevard	File Name	PM Existing.xus		
Project Description	PM Existing				



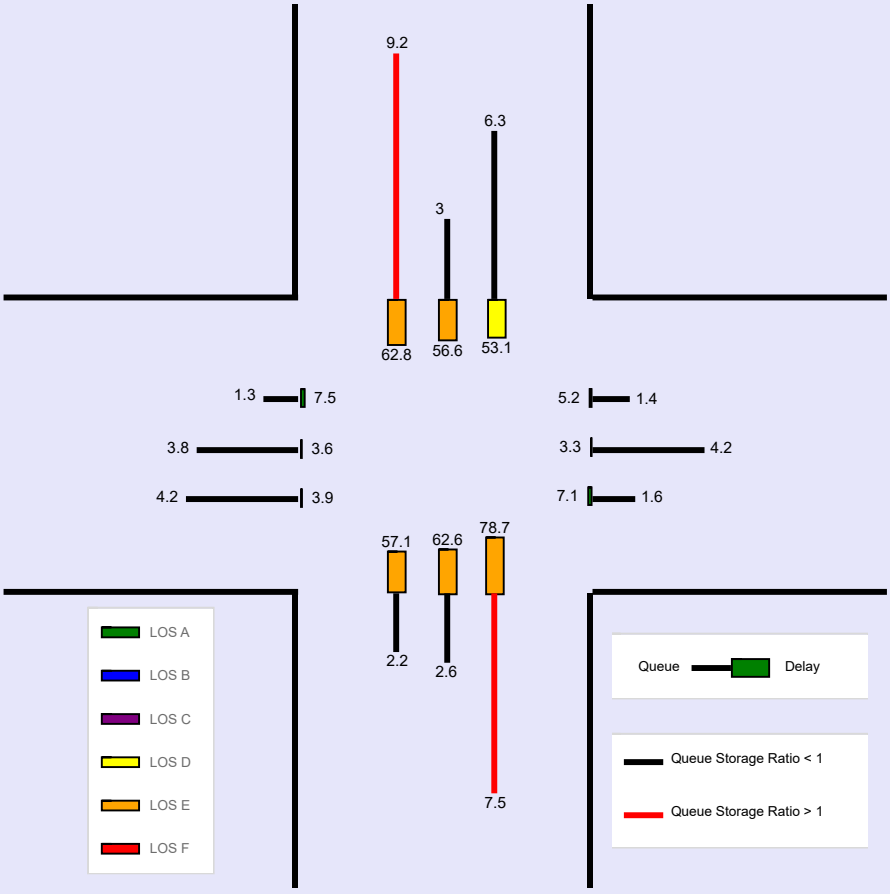
Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	73	967	27	91	1226	90	35	37	92	102	45	136

Signal Information									
Cycle, s	145.0	Reference Phase	2						
Offset, s	0	Reference Point	End						
Uncoordinated	No	Simult. Gap E/W	On						
Force Mode	Fixed	Simult. Gap N/S	On						

Green	3.9	0.6	97.7	3.6	2.3	14.3
Yellow	3.5	0.0	4.5	3.5	3.5	4.5
Red	0.0	0.0	1.5	0.0	0.0	1.5



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)	33.4	94.7	104.5	40.9	105.9	34.6	55.7	65.6	186.8	158.1	74.4	229.5
Back of Queue (*Q*), veh/ln (95 th percentile)	1.3	3.8	4.2	1.6	4.2	1.4	2.2	2.6	7.5	6.3	3.0	9.2
Queue Storage Ratio (*RQ*) (95 th percentile)	0.22	0.00	0.00	0.26	0.00	0.22	0.33	0.00	1.10	0.93	0.00	1.35
Control Delay (*d*), s/veh	7.5	3.6	3.9	7.1	3.3	5.2	57.1	62.6	78.7	53.1	56.6	62.8
Level of Service (LOS)	A	A	A	A	A	A	E	E	E	D	E	E
Approach Delay, s/veh / LOS	4.0	A		3.7	A		70.5	E		58.3	E	
Intersection Delay, s/veh / LOS	12.9						B					



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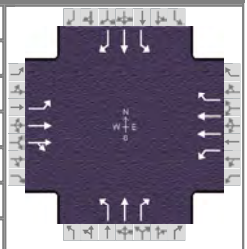
WARNING: Since queue spillover from turn lanes and spillback into upstream intersections is not accounted for in the HCM procedures, use of a simulation tool may be advised in situations where the Queue Storage Ratio exceeds 1.0.

--- Comments ---

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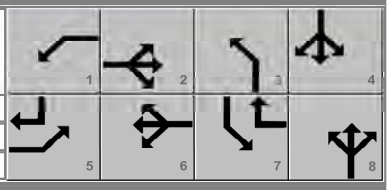
HCS7 Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	4:30 - 5:30 PM	PHF	0.95
Urban Street	US Route 14	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Teckler Boulevard	File Name	PM No-Build.xus		
Project Description	PM No-Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	77	1025	28	96	1285	95	36	38	94	105	46	140

Signal Information												
Cycle, s	145.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On	Green	4.1	0.6	97.1	3.7	2.4	14.6		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.5	0.0	4.5	3.5	3.5	4.5		
				Red	0.0	0.0	1.5	0.0	0.0	1.5		



Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	77	1025	28	96	1285	95	36	38	94	105	46	140
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	2000	1900	1900	2000	1900	1900	1900	1900	1900	1900	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	0	0		0	0	0	0	0	0	0	0	0
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	4	3	3	4	3	3	3	3	3	3	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Turn Bay Length, ft	150	0		155	0	155	170	0	170	170	0	170
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	30	30	30	30	30	30

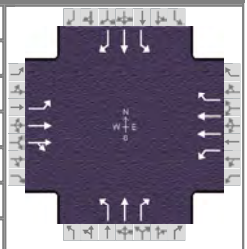
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	14.5	84.1	14.5	84.1	14.5	31.9	14.5	31.9
Yellow Change Interval (*Y*), s	3.5	4.5	3.5	4.5	3.5	4.5	3.5	4.5
Red Clearance Interval (R_c), s	0.0	1.5	0.0	1.5	0.0	1.5	0.0	1.5
Minimum Green (G_{min}), s	3	15	3	15	3	12	3	12
Start-Up Lost Time (*lt*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s	3.0	2.0	3.0	2.0	3.0	7.0	3.0	7.0
Recall Mode	Off	Min	Off	Min	Off	Off	Off	Off
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0	No	25	0	No	25	0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft	9.0	12	0	9.0	12	0	9.0	12	0	9.0	12	0
Street Width / Island / Curb	0	0	No	0	0	No	0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

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HCS7 Signalized Intersection Results Summary

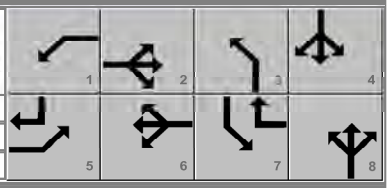
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	4:30 - 5:30 PM	PHF	0.95
Urban Street	US Route 14	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Teckler Boulevard	File Name	PM No-Build.xus		
Project Description	PM No-Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	77	1025	28	96	1285	95	36	38	94	105	46	140

Signal Information			
Cycle, s	145.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.1	0.6	97.1	3.7	2.4	14.6	
Yellow	3.5	0.0	4.5	3.5	3.5	4.5	
Red	0.0	0.0	1.5	0.0	0.0	1.5	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	1.1	4.0	1.1	3.0	1.1	3.0	1.1	3.0
Phase Duration, s	7.6	103.1	8.2	103.7	7.2	20.6	13.1	26.5
Change Period, ($Y+R_c$), s	3.5	6.0	3.5	6.0	3.5	6.0	3.5	6.0
Max Allow Headway (*MAH*), s	4.0	0.0	4.0	0.0	4.1	8.6	4.1	8.6
Queue Clearance Time (g_s), s	4.1		4.6		4.7	10.5	9.7	14.1
Green Extension Time (g_e), s	0.2	0.0	0.2	0.0	0.0	4.0	0.0	4.3
Phase Call Probability	0.96		0.98		0.78	1.00	0.99	1.00
Max Out Probability	0.00		0.00		0.05	0.29	1.00	0.20

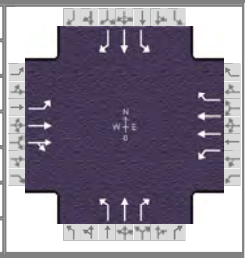
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	81	557	552	101	1353	100	38	40	99	111	48	147
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	2000	1981	1810	1904	1610	1810	1900	1610	1810	1900	1610
Queue Service Time (g_s), s	2.1	6.9	7.6	2.6	9.9	2.5	2.7	2.8	8.5	7.7	3.3	12.1
Cycle Queue Clearance Time (g_c), s	2.1	6.9	7.6	2.6	9.9	2.5	2.7	2.8	8.5	7.7	3.3	12.1
Green Ratio (*g/C*)	0.70	0.67	0.67	0.70	0.67	0.74	0.13	0.10	0.10	0.18	0.14	0.17
Capacity (*c*), veh/h	343	1339	1326	427	2566	1192	234	191	162	283	269	273
Volume-to-Capacity Ratio (*X*)	0.237	0.416	0.416	0.237	0.527	0.084	0.162	0.210	0.612	0.391	0.180	0.540
Back of Queue (*Q*), ft/ln (95 th percentile)	36.1	107.4	117.8	44.1	119.1	37.2	57.1	67.2	190.2	162.4	75.7	234.3
Back of Queue (*Q*), veh/ln (95 th percentile)	1.4	4.3	4.7	1.8	4.8	1.5	2.3	2.7	7.6	6.5	3.0	9.4
Queue Storage Ratio (*RQ*) (95 th percentile)	0.24	0.00	0.00	0.28	0.00	0.24	0.34	0.00	1.12	0.96	0.00	1.38
Uniform Delay (d_1), s/veh	7.5	2.9	3.3	7.1	2.9	5.2	56.6	59.9	62.5	51.9	54.8	55.0
Incremental Delay (d_2), s/veh	0.4	1.0	1.0	0.3	0.8	0.1	0.3	2.5	16.0	0.9	1.5	7.5
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	7.8	3.9	4.3	7.4	3.7	5.4	56.9	62.4	78.5	52.8	56.3	62.5
Level of Service (LOS)	A	A	A	A	A	A	E	E	E	D	E	E
Approach Delay, s/veh / LOS	4.3	A		4.0	A		70.3	E		58.0	E	
Intersection Delay, s/veh / LOS	12.9						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.07	B	2.07	B	2.47	B	2.32	B
Bicycle LOS Score / LOS	1.47	A	1.77	B	0.78	A	0.99	A

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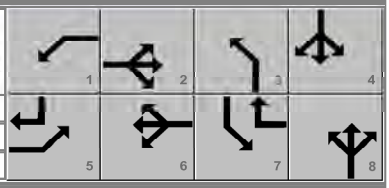
HCS7 Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	4:30 - 5:30 PM	PHF	0.95
Urban Street	US Route 14	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Teckler Boulevard	File Name	PM No-Build.xus		
Project Description	PM No-Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	77	1025	28	96	1285	95	36	38	94	105	46	140

Signal Information												
Cycle, s	145.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On	Green	4.1	0.6	97.1	3.7	2.4	14.6		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.5	0.0	4.5	3.5	3.5	4.5		
				Red	0.0	0.0	1.5	0.0	0.0	1.5		



Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	0.952	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.952	0.000		0.952	0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.990	0.990		0.000	0.847		0.000	0.847		0.000	0.847
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Movement Saturation Flow Rate (s), veh/h	1810	3875	106	1810	3808	1610	1810	1900	1610	1810	1900	1610
Proportion of Vehicles Arriving on Green (P)	0.03	0.89	0.67	0.03	0.90	0.67	0.03	0.10	0.10	0.07	0.14	0.14
Incremental Delay Factor (k)	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.50	0.50

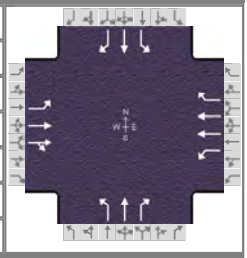
Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)	3.5	6.0	3.5	6.0	3.5	6.0	3.5	6.0
Green Ratio (g/C)	0.70	0.67	0.70	0.67	0.13	0.10	0.18	0.14
Permitted Saturation Flow Rate (s_p), veh/h/ln	409	0	517	0	1378	0	1389	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s	97.1	0.0	97.1	0.0	14.6	0.0	16.6	0.0
Permitted Service Time (g_u), s	85.7	0.0	89.4	0.0	14.6	0.0	11.8	0.0
Permitted Queue Service Time (g_{ps}), s	2.8		1.9		0.0		0.4	
Time to First Blockage (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln				1610		0		1610
Protected Right Effective Green Time (g_R), s				9.6		0.0		4.1

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.389	0.000	1.389	0.000	1.710	0.000	1.557	0.000
Pedestrian F_s / F_{delay}	0.000	0.083	0.000	0.082	0.000	0.163	0.000	0.160
Pedestrian M_{corner} / M_{cw}								
Bicycle c_b / d_b	1338.80	7.92	1347.63	7.71	200.96	58.66	282.88	53.44
Bicycle F_w / F_v	-3.64	0.98	-3.64	1.28	-3.64	0.29	-3.64	0.51

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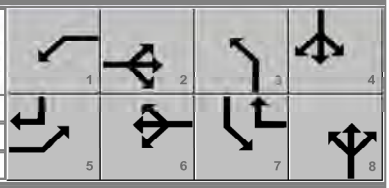
HCS7 Signalized Intersection Results Graphical Summary

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	4:30 - 5:30 PM	PHF	0.95
Urban Street	US Route 14	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Teckler Boulevard	File Name	PM No-Build.xus		
Project Description	PM No-Build				

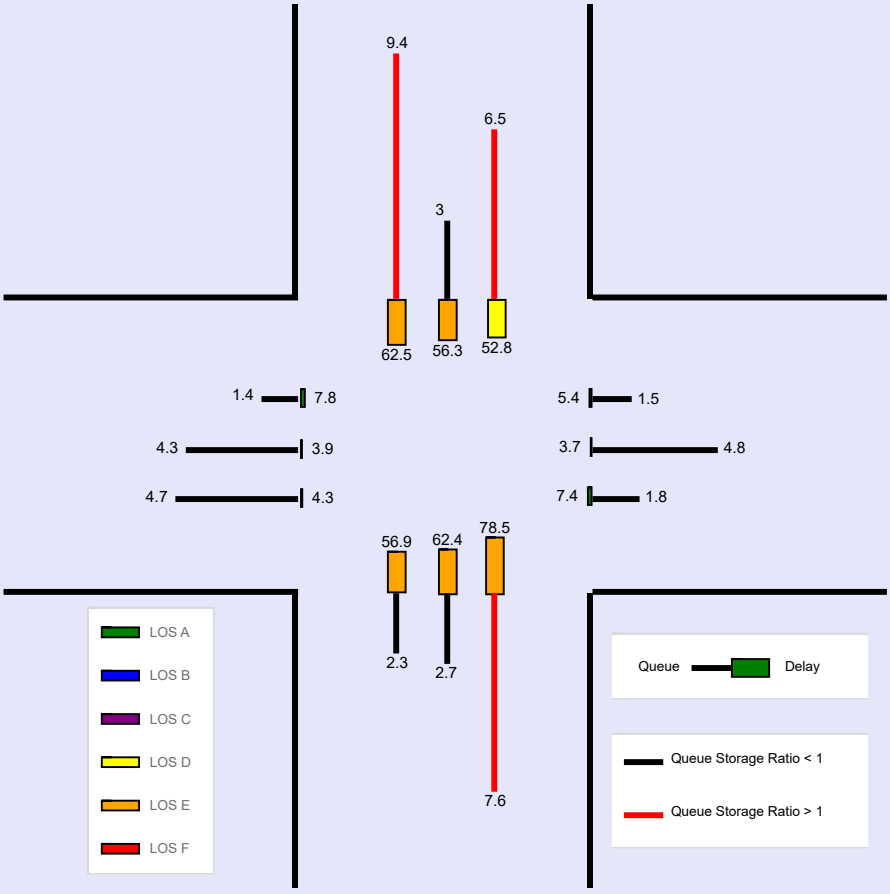


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	77	1025	28	96	1285	95	36	38	94	105	46	140

Signal Information					EB			WB			NB			SB		
Cycle, s	145.0	Reference Phase	2													
Offset, s	0	Reference Point	End	Green	4.1	0.6		97.1	3.7	2.4	14.6					
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.5	0.0		4.5	3.5	3.5	4.5					
Force Mode	Fixed	Simult. Gap N/S	On	Red	0.0	0.0		1.5	0.0	0.0	1.5					



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)	36.1	107.4	117.8	44.1	119.1	37.2	57.1	67.2	190.2	162.4	75.7	234.3
Back of Queue (*Q*), veh/ln (95 th percentile)	1.4	4.3	4.7	1.8	4.8	1.5	2.3	2.7	7.6	6.5	3.0	9.4
Queue Storage Ratio (*RQ*) (95 th percentile)	0.24	0.00	0.00	0.28	0.00	0.24	0.34	0.00	1.12	0.96	0.00	1.38
Control Delay (*d*), s/veh	7.8	3.9	4.3	7.4	3.7	5.4	56.9	62.4	78.5	52.8	56.3	62.5
Level of Service (LOS)	A	A	A	A	A	A	E	E	E	D	E	E
Approach Delay, s/veh / LOS	4.3	A		4.0	A		70.3	E		58.0	E	
Intersection Delay, s/veh / LOS	12.9						B					



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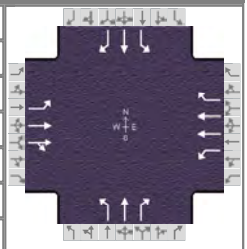
WARNING: Since queue spillover from turn lanes and spillback into upstream intersections is not accounted for in the HCM procedures, use of a simulation tool may be advised in situations where the Queue Storage Ratio exceeds 1.0.

--- Comments ---

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HCS7 Signalized Intersection Input Data

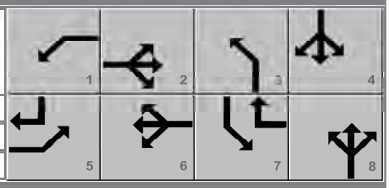
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	4:30 - 5:30 PM	PHF	0.95
Urban Street	US Route 14	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Teckler Boulevard	File Name	PM Total.xus		
Project Description	PM Total				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	97	1025	28	96	1285	119	36	43	94	119	49	152

Signal Information			
Cycle, s	145.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.8	95.8	3.7	3.5	14.7	0.0	
Yellow	3.5	4.5	3.5	3.5	4.5	0.0	
Red	0.0	1.5	0.0	0.0	1.5	0.0	



Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	97	1025	28	96	1285	119	36	43	94	119	49	152
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	2000	1900	1900	2000	1900	1900	1900	1900	1900	1900	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	0	0		0	0	0	0	0	0	0	0	0
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	4	3	3	4	3	3	3	3	3	3	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Turn Bay Length, ft	150	0		155	0	155	170	0	170	170	0	170
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	30	30	30	30	30	30

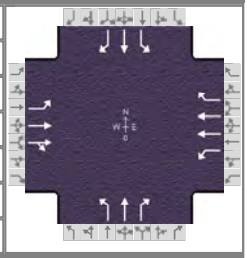
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	14.5	84.1	14.5	84.1	14.5	31.9	14.5	31.9
Yellow Change Interval (*Y*), s	3.5	4.5	3.5	4.5	3.5	4.5	3.5	4.5
Red Clearance Interval (R_c), s	0.0	1.5	0.0	1.5	0.0	1.5	0.0	1.5
Minimum Green (G_{min}), s	3	15	3	15	3	12	3	12
Start-Up Lost Time (*lt*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s	3.0	2.0	3.0	2.0	3.0	7.0	3.0	7.0
Recall Mode	Off	Min	Off	Min	Off	Off	Off	Off
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0	No	25	0	No	25	0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft	9.0	12	0	9.0	12	0	9.0	12	0	9.0	12	0
Street Width / Island / Curb	0	0	No	0	0	No	0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

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HCS7 Signalized Intersection Results Summary

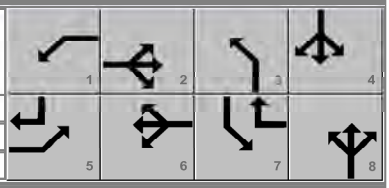
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	4:30 - 5:30 PM	PHF	0.95
Urban Street	US Route 14	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Teckler Boulevard	File Name	PM Total.xus		
Project Description	PM Total				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	97	1025	28	96	1285	119	36	43	94	119	49	152

Signal Information			
Cycle, s	145.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.8	95.8	3.7	3.5	14.7	0.0	
Yellow	3.5	4.5	3.5	3.5	4.5	0.0	
Red	0.0	1.5	0.0	0.0	1.5	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	1.1	4.0	1.1	3.0	1.1	3.0	1.1	3.0
Phase Duration, s	8.3	101.8	8.3	101.8	7.2	20.7	14.2	27.7
Change Period, (*Y+R c*), s	3.5	6.0	3.5	6.0	3.5	6.0	3.5	6.0
Max Allow Headway (*MAH*), s	4.0	0.0	4.0	0.0	4.1	8.6	4.1	8.6
Queue Clearance Time (*g s*), s	4.7		4.6		4.7	10.5	10.7	15.1
Green Extension Time (*g e*), s	0.2	0.0	0.2	0.0	0.0	4.1	0.0	4.5
Phase Call Probability	0.98		0.98		0.78	1.00	0.99	1.00
Max Out Probability	0.00		0.00		0.05	0.36	1.00	0.26

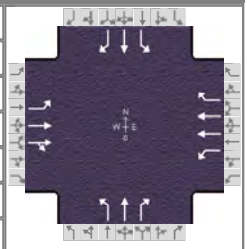
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	102	557	552	101	1353	125	38	45	99	125	52	160
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	2000	1981	1810	1904	1610	1810	1900	1610	1810	1900	1610
Queue Service Time (*g s*), s	2.7	7.6	8.3	2.6	11.6	3.2	2.7	3.2	8.5	8.7	3.4	13.1
Cycle Queue Clearance Time (*g c*), s	2.7	7.6	8.3	2.6	11.6	3.2	2.7	3.2	8.5	8.7	3.4	13.1
Green Ratio (*g/C*)	0.69	0.66	0.66	0.69	0.66	0.73	0.13	0.10	0.10	0.19	0.15	0.18
Capacity (*c*), veh/h	347	1322	1309	414	2516	1183	235	192	163	293	284	294
Volume-to-Capacity Ratio (*X*)	0.294	0.421	0.421	0.244	0.538	0.106	0.161	0.235	0.607	0.428	0.182	0.544
Back of Queue (*Q*), ft/ln (95 th percentile)	46.6	118.9	129.1	45.8	141.7	48.9	57.1	76.4	189.7	183.8	79.8	247.5
Back of Queue (*Q*), veh/ln (95 th percentile)	1.9	4.8	5.2	1.8	5.7	2.0	2.3	3.1	7.6	7.4	3.2	9.9
Queue Storage Ratio (*RQ*) (95 th percentile)	0.31	0.00	0.00	0.30	0.00	0.32	0.34	0.00	1.12	1.08	0.00	1.46
Uniform Delay (*d 1*), s/veh	7.8	3.4	3.7	7.7	3.6	5.5	56.5	60.0	62.4	51.4	53.9	53.8
Incremental Delay (*d 2*), s/veh	0.5	1.0	1.0	0.3	0.8	0.2	0.3	2.9	15.7	1.0	1.4	7.1
Initial Queue Delay (*d 3*), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	8.3	4.4	4.7	8.0	4.4	5.7	56.8	62.8	78.1	52.4	55.3	60.8
Level of Service (LOS)	A	A	A	A	A	A	E	E	E	D	E	E
Approach Delay, s/veh / LOS	4.9	A		4.8	A		69.8	E		56.8	E	
Intersection Delay, s/veh / LOS	13.7						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.07	B	2.07	B	2.47	B	2.32	B
Bicycle LOS Score / LOS	1.49	A	1.79	B	0.79	A	1.04	A

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HCS7 Signalized Intersection Intermediate Values

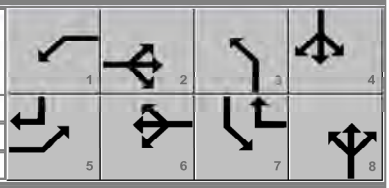
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	4:30 - 5:30 PM	PHF	0.95
Urban Street	US Route 14	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Teckler Boulevard	File Name	PM Total.xus		
Project Description	PM Total				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	97	1025	28	96	1285	119	36	43	94	119	49	152

Signal Information			
Cycle, s	145.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.8	95.8	3.7	3.5	14.7	0.0	
Yellow	3.5	4.5	3.5	3.5	4.5	0.0	
Red	0.0	1.5	0.0	0.0	1.5	0.0	



Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	0.952	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.952	0.000		0.952	0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.990	0.990		0.000	0.847		0.000	0.847		0.000	0.847
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Movement Saturation Flow Rate (s), veh/h	1810	3875	106	1810	3808	1610	1810	1900	1610	1810	1900	1610
Proportion of Vehicles Arriving on Green (P)	0.03	0.88	0.66	0.03	0.88	0.66	0.03	0.10	0.10	0.07	0.15	0.15
Incremental Delay Factor (k)	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.50	0.50

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)	3.5	6.0	3.5	6.0	3.5	6.0	3.5	6.0
Green Ratio (g/C)	0.69	0.66	0.69	0.66	0.13	0.10	0.19	0.15
Permitted Saturation Flow Rate (s_p), veh/h/ln	409	0	517	0	1374	0	1382	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s	95.8	0.0	95.8	0.0	14.7	0.0	16.7	0.0
Permitted Service Time (g_u), s	84.2	0.0	85.5	0.0	14.7	0.0	11.5	0.0
Permitted Queue Service Time (g_{ps}), s	3.9		2.5		0.0		0.5	
Time to First Blockage (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln				1610		0		1610
Protected Right Effective Green Time (g_R), s				10.7		0.0		4.8

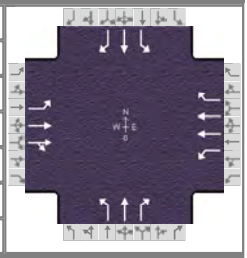
Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.389	0.000	1.389	0.000	1.710	0.000	1.557	0.000
Pedestrian F_s / F_{delay}	0.000	0.085	0.000	0.085	0.000	0.163	0.000	0.159
Pedestrian M_{corner} / M_{cw}								
Bicycle c_b / d_b	1322.06	8.33	1321.60	8.34	202.50	58.56	298.80	52.45
Bicycle F_w / F_v	-3.64	1.00	-3.64	1.30	-3.64	0.30	-3.64	0.56

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HCS7 Signalized Intersection Results Graphical Summary

Appendix G

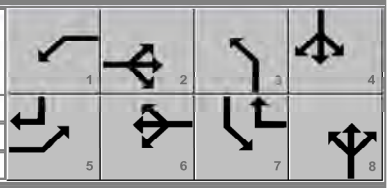
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	4:30 - 5:30 PM	PHF	0.95
Urban Street	US Route 14	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Teckler Boulevard	File Name	PM Total.xus		
Project Description	PM Total				



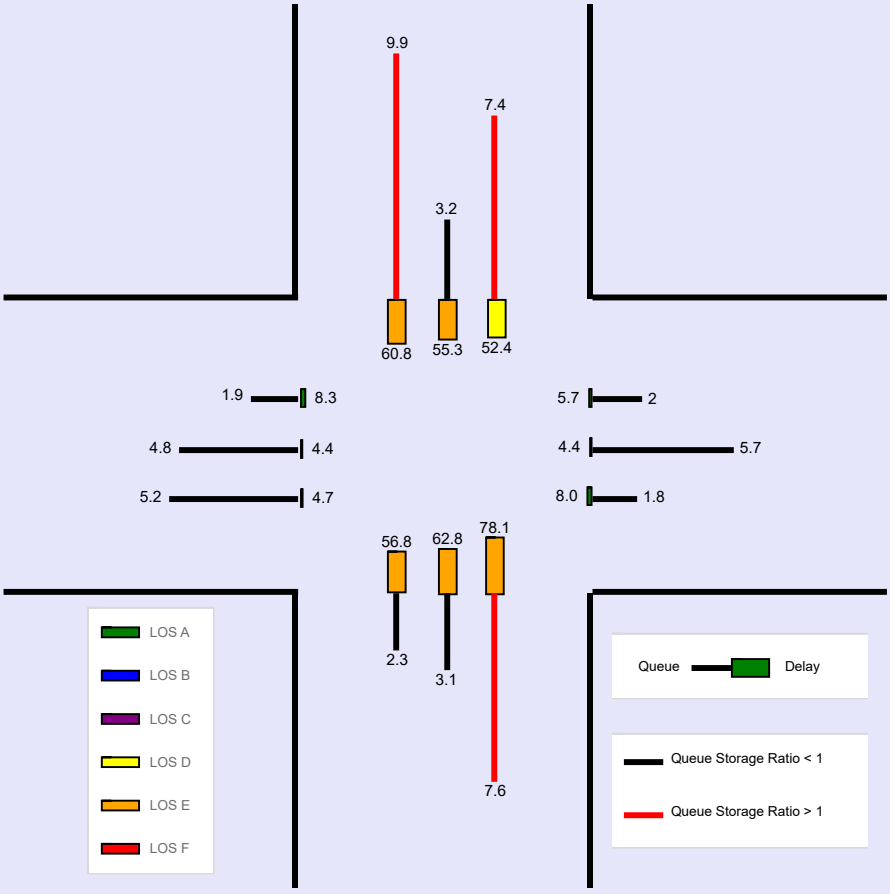
Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	97	1025	28	96	1285	119	36	43	94	119	49	152

Signal Information			
Cycle, s	145.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.8	95.8	3.7	3.5	14.7	0.0	
Yellow	3.5	4.5	3.5	3.5	4.5	0.0	
Red	0.0	1.5	0.0	0.0	1.5	0.0	



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)	46.6	118.9	129.1	45.8	141.7	48.9	57.1	76.4	189.7	183.8	79.8	247.5
Back of Queue (*Q*), veh/ln (95 th percentile)	1.9	4.8	5.2	1.8	5.7	2.0	2.3	3.1	7.6	7.4	3.2	9.9
Queue Storage Ratio (*RQ*) (95 th percentile)	0.31	0.00	0.00	0.30	0.00	0.32	0.34	0.00	1.12	1.08	0.00	1.46
Control Delay (*d*), s/veh	8.3	4.4	4.7	8.0	4.4	5.7	56.8	62.8	78.1	52.4	55.3	60.8
Level of Service (LOS)	A	A	A	A	A	A	E	E	E	D	E	E
Approach Delay, s/veh / LOS	4.9	A		4.8	A		69.8	E		56.8	E	
Intersection Delay, s/veh / LOS	13.7						B					



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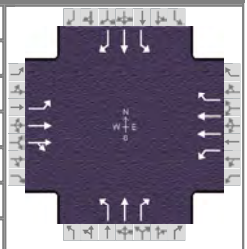
WARNING: Since queue spillover from turn lanes and spillback into upstream intersections is not accounted for in the HCM procedures, use of a simulation tool may be advised in situations where the Queue Storage Ratio exceeds 1.0.

--- Comments ---

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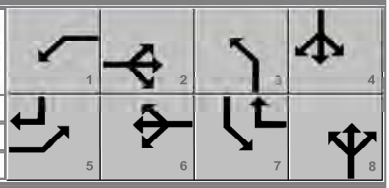
HCS7 Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	12:00 - 1:00 PM	PHF	0.95
Urban Street	US Route 14	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Teckler Boulevard	File Name	SAT Existing.xus		
Project Description	SAT Existing				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	115	1141	28	84	1159	84	38	46	76	147	48	153

Signal Information													
Cycle, s	130.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On	Green	4.3	1.0	82.6	3.5	3.8	12.3			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.5	0.0	4.5	3.5	3.5	4.5			
				Red	0.0	0.0	1.5	0.0	0.0	1.5			



Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	115	1141	28	84	1159	84	38	46	76	147	48	153
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	2000	1900	1900	2000	1900	1900	1900	1900	1900	1900	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	0	0		1	0	0	0	1	0	0	0	0
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	4	3	3	4	3	3	3	3	3	3	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Turn Bay Length, ft	150	0		155	0	155	170	0	170	170	0	170
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	30	30	30	30	30	30

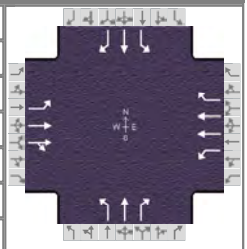
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	15.6	68.9	15.6	68.9	16.9	31.2	14.3	28.6
Yellow Change Interval (*Y*), s	3.5	4.5	3.5	4.5	3.5	4.5	3.5	4.5
Red Clearance Interval (R_c), s	0.0	1.5	0.0	1.5	0.0	1.5	0.0	1.5
Minimum Green (G_{min}), s	3	15	3	15	3	12	3	12
Start-Up Lost Time (*lt*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s	3.0	2.0	3.0	2.0	3.0	7.0	3.0	7.0
Recall Mode	Off	Min	Off	Min	Off	Off	Off	Off
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0	No	25	0	No	25	0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft	9.0	12	0	9.0	12	0	9.0	12	0	9.0	12	0
Street Width / Island / Curb	0	0	No	0	0	No	0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

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HCS7 Signalized Intersection Results Summary

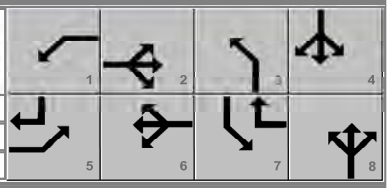
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	12:00 - 1:00 PM	PHF	0.95
Urban Street	US Route 14	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Teckler Boulevard	File Name	SAT Existing.xus		
Project Description	SAT Existing				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	115	1141	28	84	1159	84	38	46	76	147	48	153

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.3	1.0	82.6	3.5	3.8	12.3	
Yellow	3.5	0.0	4.5	3.5	3.5	4.5	
Red	0.0	0.0	1.5	0.0	0.0	1.5	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	1.1	4.0	1.1	3.0	1.1	3.0	1.1	3.0
Phase Duration, s	8.8	89.6	7.8	88.6	7.0	18.3	14.3	25.6
Change Period, ($Y+R_c$), s	3.5	6.0	3.5	6.0	3.5	6.0	3.5	6.0
Max Allow Headway (*MAH*), s	4.0	0.0	4.0	0.0	4.1	8.6	4.1	8.6
Queue Clearance Time (g_s), s	5.0		4.2		4.6	8.2	11.8	13.7
Green Extension Time (g_e), s	0.3	0.0	0.2	0.0	0.0	4.2	0.0	4.4
Phase Call Probability	0.99		0.96		0.76	1.00	1.00	1.00
Max Out Probability	0.00		0.00		0.00	0.28	1.00	0.22

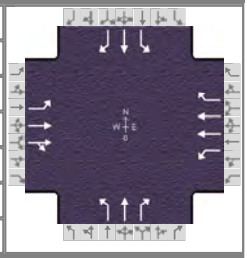
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	121	618	613	88	1220	88	40	48	80	155	51	161
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	2000	1983	1795	1904	1610	1810	1885	1610	1810	1900	1610
Queue Service Time (g_s), s	3.0	9.7	10.4	2.2	11.1	2.1	2.6	3.1	6.2	9.8	3.0	11.7
Cycle Queue Clearance Time (g_c), s	3.0	9.7	10.4	2.2	11.1	2.1	2.6	3.1	6.2	9.8	3.0	11.7
Green Ratio (*g/C*)	0.68	0.64	0.64	0.67	0.64	0.72	0.12	0.09	0.09	0.19	0.15	0.19
Capacity (*c*), veh/h	384	1286	1275	364	2420	1157	235	179	153	303	286	308
Volume-to-Capacity Ratio (*X*)	0.315	0.480	0.481	0.243	0.504	0.076	0.170	0.271	0.524	0.510	0.176	0.523
Back of Queue (*Q*), ft/ln (95 th percentile)	52.2	144.3	153.5	38.8	144.9	31.4	53.9	75.5	136.3	201.4	69.7	224.9
Back of Queue (*Q*), veh/ln (95 th percentile)	2.1	5.8	6.1	1.5	5.8	1.3	2.2	3.0	5.5	8.1	2.8	9.0
Queue Storage Ratio (*RQ*) (95 th percentile)	0.35	0.00	0.00	0.25	0.00	0.20	0.32	0.00	0.80	1.18	0.00	1.32
Uniform Delay (d_1), s/veh	8.0	4.0	4.3	8.1	4.5	5.4	51.3	54.7	56.0	46.4	48.2	47.2
Incremental Delay (d_2), s/veh	0.5	1.3	1.3	0.3	0.8	0.1	0.3	3.7	12.3	1.4	1.3	6.2
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	8.4	5.3	5.6	8.5	5.2	5.6	51.6	58.4	68.3	47.8	49.5	53.5
Level of Service (LOS)	A	A	A	A	A	A	D	E	E	D	D	D
Approach Delay, s/veh / LOS	5.7	A		5.4	A		61.5	E		50.5	D	
Intersection Delay, s/veh / LOS	13.5						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.07	B	2.07	B	2.47	B	2.31	B
Bicycle LOS Score / LOS	1.60	B	1.64	B	0.77	A	1.09	A

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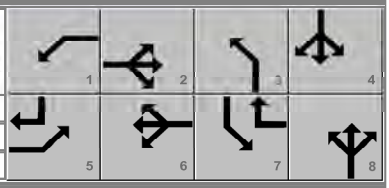
HCS7 Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	12:00 - 1:00 PM	PHF	0.95
Urban Street	US Route 14	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Teckler Boulevard	File Name	SAT Existing.xus		
Project Description	SAT Existing				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	115	1141	28	84	1159	84	38	46	76	147	48	153

Signal Information												
Cycle, s	130.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On	Green	4.3	1.0	82.6	3.5	3.8	12.3		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.5	0.0	4.5	3.5	3.5	4.5		
				Red	0.0	0.0	1.5	0.0	0.0	1.5		



Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	1.000	1.000	1.000	0.992	1.000	1.000	1.000	0.992	1.000	1.000	1.000	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	0.952	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.952	0.000		0.952	0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.991	0.991		0.000	0.847		0.000	0.847		0.000	0.847
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Movement Saturation Flow Rate (s), veh/h	1810	3887	95	1795	3808	1610	1810	1885	1610	1810	1900	1610
Proportion of Vehicles Arriving on Green (P)	0.04	0.86	0.64	0.03	0.85	0.64	0.03	0.09	0.09	0.08	0.15	0.15
Incremental Delay Factor (k)	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.50	0.50	0.12	0.50	0.50

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)	3.5	6.0	3.5	6.0	3.5	6.0	3.5	6.0
Green Ratio (g/C)	0.68	0.64	0.67	0.64	0.12	0.09	0.19	0.15
Permitted Saturation Flow Rate (s_p), veh/h/ln	465	0	456	0	1376	0	1378	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s	82.6	0.0	82.6	0.0	12.3	0.0	14.3	0.0
Permitted Service Time (g_u), s	71.5	0.0	71.2	0.0	12.3	0.0	9.2	0.0
Permitted Queue Service Time (g_{ps}), s	3.9		2.7		0.0		0.6	
Time to First Blockage (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln				1610		0		1610
Protected Right Effective Green Time (g_R), s				10.8		0.0		5.3

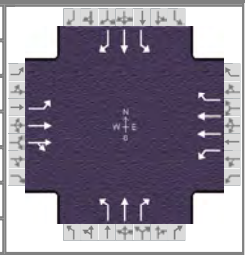
Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.389	0.000	1.389	0.000	1.710	0.000	1.557	0.000
Pedestrian F_s / F_{delay}	0.000	0.085	0.000	0.086	0.000	0.159	0.000	0.154
Pedestrian M_{corner} / M_{cw}								
Bicycle c_b / d_b	1286.37	8.28	1270.92	8.64	189.52	53.26	301.38	46.89
Bicycle F_w / F_v	-3.64	1.12	-3.64	1.15	-3.64	0.28	-3.64	0.60

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HCS7 Signalized Intersection Results Graphical Summary

Appendix G

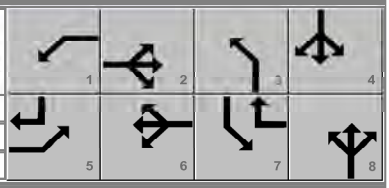
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	12:00 - 1:00 PM	PHF	0.95
Urban Street	US Route 14	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Teckler Boulevard	File Name	SAT Existing.xus		
Project Description	SAT Existing				



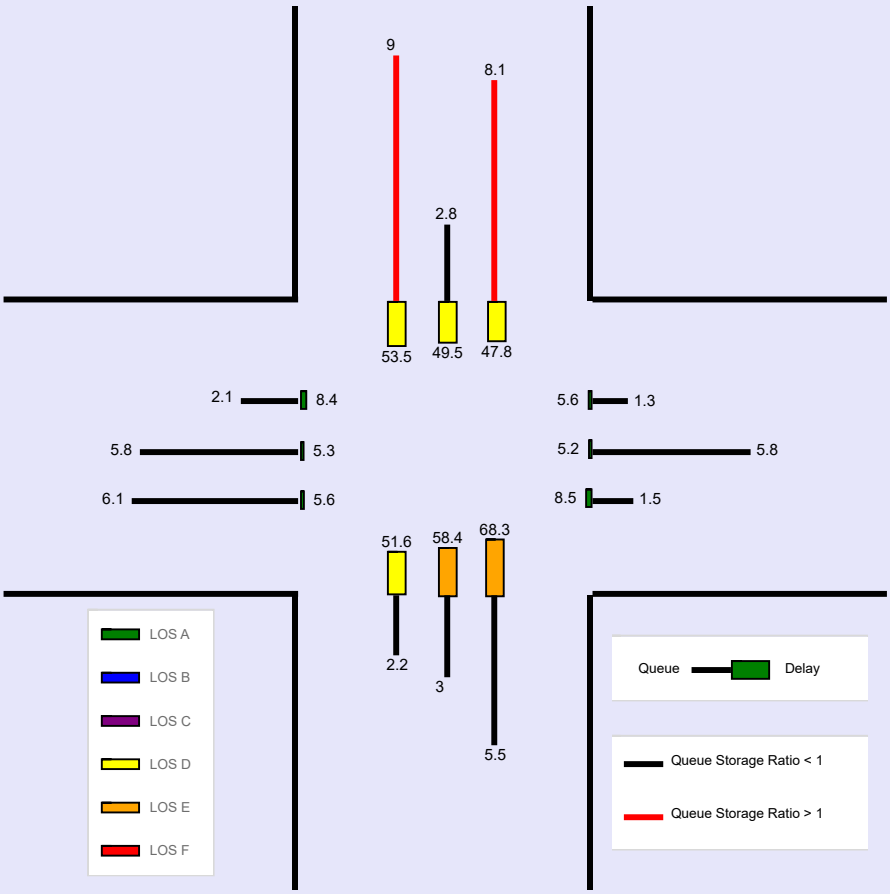
Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	115	1141	28	84	1159	84	38	46	76	147	48	153

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.3	1.0	82.6	3.5	3.8	12.3	
Yellow	3.5	0.0	4.5	3.5	3.5	4.5	
Red	0.0	0.0	1.5	0.0	0.0	1.5	



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)	52.2	144.3	153.5	38.8	144.9	31.4	53.9	75.5	136.3	201.4	69.7	224.9
Back of Queue (*Q*), veh/ln (95 th percentile)	2.1	5.8	6.1	1.5	5.8	1.3	2.2	3.0	5.5	8.1	2.8	9.0
Queue Storage Ratio (*RQ*) (95 th percentile)	0.35	0.00	0.00	0.25	0.00	0.20	0.32	0.00	0.80	1.18	0.00	1.32
Control Delay (*d*), s/veh	8.4	5.3	5.6	8.5	5.2	5.6	51.6	58.4	68.3	47.8	49.5	53.5
Level of Service (LOS)	A	A	A	A	A	A	D	E	E	D	D	D
Approach Delay, s/veh / LOS	5.7	A		5.4	A		61.5	E		50.5	D	
Intersection Delay, s/veh / LOS	13.5						B					



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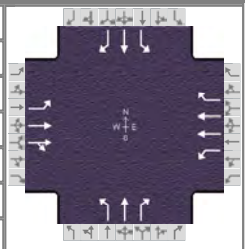
WARNING: Since queue spillover from turn lanes and spillback into upstream intersections is not accounted for in the HCM procedures, use of a simulation tool may be advised in situations where the Queue Storage Ratio exceeds 1.0.

--- Comments ---

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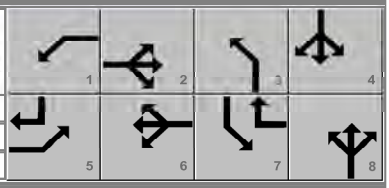
HCS7 Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	12:00 - 1:00 PM	PHF	0.95
Urban Street	US Route 14	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Teckler Boulevard	File Name	SAT No-Build.xus		
Project Description	SAT No-Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	121	1205	30	89	1213	129	38	47	78	151	49	157

Signal Information												
Cycle, s	130.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On	Green	4.5	1.0	82.1	3.5	3.8	12.6		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.5	0.0	4.5	3.5	3.5	4.5		
				Red	0.0	0.0	1.5	0.0	0.0	1.5		



Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	121	1205	30	89	1213	129	38	47	78	151	49	157
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	2000	1900	1900	2000	1900	1900	1900	1900	1900	1900	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	0	0		1	0	0	0	1	0	0	0	0
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	4	3	3	4	3	3	3	3	3	3	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Turn Bay Length, ft	150	0		155	0	155	170	0	170	170	0	170
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	30	30	30	30	30	30

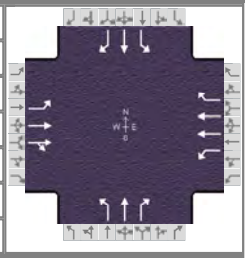
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	15.6	68.9	15.6	68.9	16.9	31.2	14.3	28.6
Yellow Change Interval (*Y*), s	3.5	4.5	3.5	4.5	3.5	4.5	3.5	4.5
Red Clearance Interval (R_c), s	0.0	1.5	0.0	1.5	0.0	1.5	0.0	1.5
Minimum Green (G_{min}), s	3	15	3	15	3	12	3	12
Start-Up Lost Time (*lt*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s	3.0	2.0	3.0	2.0	3.0	7.0	3.0	7.0
Recall Mode	Off	Min	Off	Min	Off	Off	Off	Off
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0	No	25	0	No	25	0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft	9.0	12	0	9.0	12	0	9.0	12	0	9.0	12	0
Street Width / Island / Curb	0	0	No	0	0	No	0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

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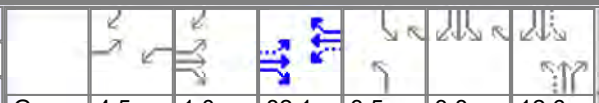
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	12:00 - 1:00 PM	PHF	0.95
Urban Street	US Route 14	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Teckler Boulevard	File Name	SAT No-Build.xus		
Project Description	SAT No-Build				

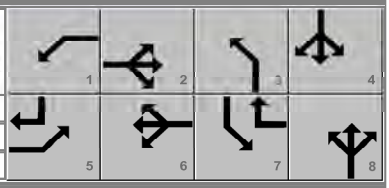


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	121	1205	30	89	1213	129	38	47	78	151	49	157

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	4.5	1.0	82.1	3.5	3.8	12.6
Yellow	3.5	0.0	4.5	3.5	3.5	4.5
Red	0.0	0.0	1.5	0.0	0.0	1.5



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	1.1	4.0	1.1	3.0	1.1	3.0	1.1	3.0
Phase Duration, s	9.0	89.2	8.0	88.1	7.0	18.6	14.3	25.8
Change Period, ($Y+R_c$), s	3.5	6.0	3.5	6.0	3.5	6.0	3.5	6.0
Max Allow Headway (*MAH*), s	4.0	0.0	4.0	0.0	4.1	8.6	4.1	8.6
Queue Clearance Time (g_s), s	5.2		4.4		4.6	8.3	12.1	14.0
Green Extension Time (g_e), s	0.3	0.0	0.2	0.0	0.0	4.3	0.0	4.5
Phase Call Probability	0.99		0.97		0.76	1.00	1.00	1.00
Max Out Probability	0.00		0.00		0.00	0.30	1.00	0.24

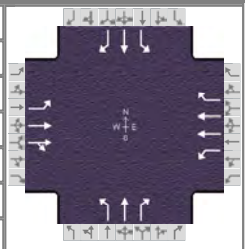
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	127	653	647	94	1277	136	40	49	82	159	52	165
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	2000	1983	1795	1904	1610	1810	1885	1610	1810	1900	1610
Queue Service Time (g_s), s	3.2	11.0	11.7	2.4	12.4	3.4	2.6	3.2	6.3	10.1	3.1	12.0
Cycle Queue Clearance Time (g_c), s	3.2	11.0	11.7	2.4	12.4	3.4	2.6	3.2	6.3	10.1	3.1	12.0
Green Ratio (*g/C*)	0.67	0.64	0.64	0.67	0.63	0.71	0.12	0.10	0.10	0.20	0.15	0.19
Capacity (*c*), veh/h	368	1280	1268	345	2406	1151	237	182	156	305	290	314
Volume-to-Capacity Ratio (*X*)	0.346	0.510	0.510	0.271	0.531	0.118	0.169	0.272	0.528	0.521	0.178	0.527
Back of Queue (*Q*), ft/ln (50 th percentile)	31	88.9	94.7	23.2	88.2	28.2	29.9	42.7	77.5	117.3	39.4	134
Back of Queue (*Q*), veh/ln (50 th percentile)	1.2	3.6	3.8	0.9	3.5	1.1	1.2	1.7	3.1	4.7	1.6	5.4
Queue Storage Ratio (*RQ*) (50 th percentile)	0.21	0.00	0.00	0.15	0.00	0.18	0.18	0.00	0.46	0.69	0.00	0.79
Uniform Delay (d_1), s/veh	8.3	4.3	4.6	8.4	4.7	5.8	51.0	54.5	55.9	46.3	48.0	47.0
Incremental Delay (d_2), s/veh	0.6	1.5	1.5	0.4	0.8	0.2	0.3	3.6	12.2	1.6	1.3	6.2
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	8.8	5.7	6.1	8.9	5.6	6.0	51.4	58.1	68.1	47.9	49.3	53.2
Level of Service (LOS)	A	A	A	A	A	A	D	E	E	D	D	D
Approach Delay, s/veh / LOS	6.2	A		5.8	A		61.3	E		50.4	D	
Intersection Delay, s/veh / LOS	13.5						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.07	B	2.08	B	2.47	B	2.31	B
Bicycle LOS Score / LOS	1.67	B	1.73	B	0.77	A	1.11	A

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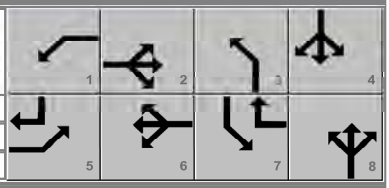
HCS7 Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	12:00 - 1:00 PM	PHF	0.95
Urban Street	US Route 14	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Teckler Boulevard	File Name	SAT No-Build.xus		
Project Description	SAT No-Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	121	1205	30	89	1213	129	38	47	78	151	49	157

Signal Information												
Cycle, s	130.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On	Green	4.5	1.0	82.1	3.5	3.8	12.6		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.5	0.0	4.5	3.5	3.5	4.5		
				Red	0.0	0.0	1.5	0.0	0.0	1.5		



Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	1.000	1.000	1.000	0.992	1.000	1.000	1.000	0.992	1.000	1.000	1.000	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	0.952	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.952	0.000		0.952	0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.991	0.991		0.000	0.847		0.000	0.847		0.000	0.847
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Movement Saturation Flow Rate (s), veh/h	1810	3886	97	1795	3808	1610	1810	1885	1610	1810	1900	1610
Proportion of Vehicles Arriving on Green (P)	0.04	0.85	0.64	0.03	0.84	0.63	0.03	0.10	0.10	0.08	0.15	0.15
Incremental Delay Factor (k)	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.50	0.50	0.12	0.50	0.50

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)	3.5	6.0	3.5	6.0	3.5	6.0	3.5	6.0
Green Ratio (g/C)	0.67	0.64	0.67	0.63	0.12	0.10	0.20	0.15
Permitted Saturation Flow Rate (s_p), veh/h/ln	440	0	427	0	1374	0	1377	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s	82.1	0.0	82.1	0.0	12.6	0.0	14.6	0.0
Permitted Service Time (g_u), s	69.7	0.0	69.4	0.0	12.6	0.0	9.4	0.0
Permitted Queue Service Time (g_{ps}), s	5.1		3.6		0.0		0.7	
Time to First Blockage (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln				1610		0		1610
Protected Right Effective Green Time (g_R), s				10.8		0.0		5.5

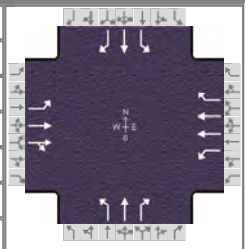
Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.389	0.000	1.389	0.000	1.710	0.000	1.557	0.000
Pedestrian F_s / F_{delay}	0.000	0.086	0.000	0.087	0.000	0.159	0.000	0.154
Pedestrian M_{corner} / M_{cw}								
Bicycle c_b / d_b	1279.58	8.43	1263.78	8.81	193.30	53.04	305.23	46.67
Bicycle F_w / F_v	-3.64	1.18	-3.64	1.24	-3.64	0.28	-3.64	0.62

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HCS7 Signalized Intersection Results Graphical Summary

Appendix G

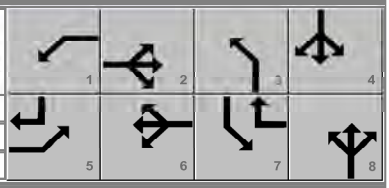
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	12:00 - 1:00 PM	PHF	0.95
Urban Street	US Route 14	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Teckler Boulevard	File Name	SAT No-Build.xus		
Project Description	SAT No-Build				



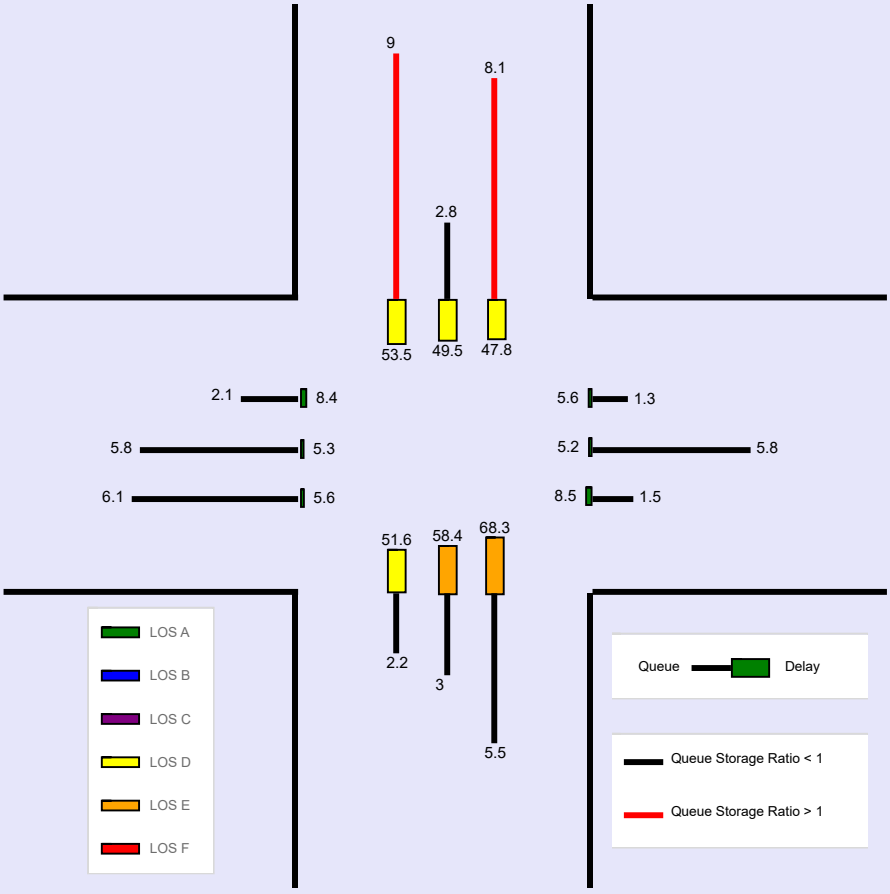
Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	121	1205	30	89	1213	129	38	47	78	151	49	157

Signal Information								
Cycle, s	130.0	Reference Phase	2					
Offset, s	0	Reference Point	End					
Uncoordinated	No	Simult. Gap E/W	On					
Force Mode	Fixed	Simult. Gap N/S	On					

Green	4.5	1.0	82.1	3.5	3.8	12.6
Yellow	3.5	0.0	4.5	3.5	3.5	4.5
Red	0.0	0.0	1.5	0.0	0.0	1.5



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (50 th percentile)	31	88.9	94.7	23.2	88.2	28.2	29.9	42.7	77.5	117.3	39.4	134
Back of Queue (*Q*), veh/ln (50 th percentile)	1.2	3.6	3.8	0.9	3.5	1.1	1.2	1.7	3.1	4.7	1.6	5.4
Queue Storage Ratio (*RQ*) (50 th percentile)	0.21	0.00	0.00	0.15	0.00	0.18	0.18	0.00	0.46	0.69	0.00	0.79
Control Delay (*d*), s/veh	8.8	5.7	6.1	8.9	5.6	6.0	51.4	58.1	68.1	47.9	49.3	53.2
Level of Service (LOS)	A	A	A	A	A	A	D	E	E	D	D	D
Approach Delay, s/veh / LOS	6.2	A		5.8	A		61.3	E		50.4	D	
Intersection Delay, s/veh / LOS	13.5						B					



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--- Messages ---

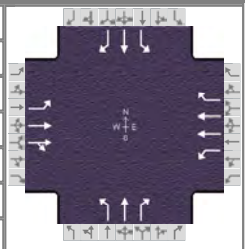
No errors or warnings exist.

--- Comments ---

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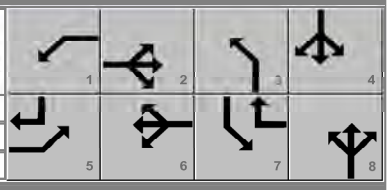
HCS7 Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	12:00 - 1:00 PM	PHF	0.95
Urban Street	US Route 14	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Teckler Boulevard	File Name	SAT Total.xus		
Project Description	SAT No-Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	134	1205	30	89	1213	145	38	50	78	167	52	170

Signal Information												
Cycle, s	130.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On	Green	4.5	1.4	81.4	3.5	3.8	12.8		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.5	0.0	4.5	3.5	3.5	4.5		
				Red	0.0	0.0	1.5	0.0	0.0	1.5		



Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	134	1205	30	89	1213	145	38	50	78	167	52	170
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	2000	1900	1900	2000	1900	1900	1900	1900	1900	1900	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	0	0		1	0	0	0	1	0	0	0	0
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	4	3	3	4	3	3	3	3	3	3	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Turn Bay Length, ft	150	0		155	0	155	170	0	170	170	0	170
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	30	30	30	30	30	30

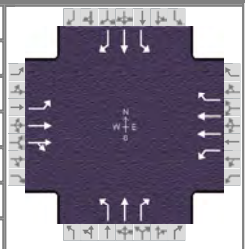
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	15.6	68.9	15.6	68.9	16.9	31.2	14.3	28.6
Yellow Change Interval (*Y*), s	3.5	4.5	3.5	4.5	3.5	4.5	3.5	4.5
Red Clearance Interval (R_c), s	0.0	1.5	0.0	1.5	0.0	1.5	0.0	1.5
Minimum Green (G_{min}), s	3	15	3	15	3	12	3	12
Start-Up Lost Time (*lt*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s	3.0	2.0	3.0	2.0	3.0	7.0	3.0	7.0
Recall Mode	Off	Min	Off	Min	Off	Off	Off	Off
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0	No	25	0	No	25	0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft	9.0	12	0	9.0	12	0	9.0	12	0	9.0	12	0
Street Width / Island / Curb	0	0	No	0	0	No	0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

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HCS7 Signalized Intersection Results Summary

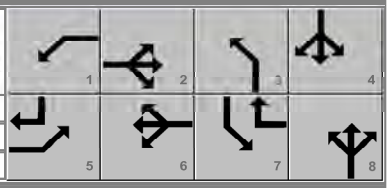
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	12:00 - 1:00 PM	PHF	0.95
Urban Street	US Route 14	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Teckler Boulevard	File Name	SAT Total.xus		
Project Description	SAT No-Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	134	1205	30	89	1213	145	38	50	78	167	52	170

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.5	1.4	81.4	3.5	3.8	12.8	
Yellow	3.5	0.0	4.5	3.5	3.5	4.5	
Red	0.0	0.0	1.5	0.0	0.0	1.5	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	1.1	4.0	1.1	3.0	1.1	3.0	1.1	3.0
Phase Duration, s	9.4	88.9	8.0	87.4	7.0	18.8	14.3	26.1
Change Period, ($Y+R_c$), s	3.5	6.0	3.5	6.0	3.5	6.0	3.5	6.0
Max Allow Headway (*MAH*), s	4.0	0.0	4.0	0.0	4.1	8.6	4.1	8.6
Queue Clearance Time (g_s), s	5.6		4.4		4.6	8.3	12.8	15.0
Green Extension Time (g_e), s	0.4	0.0	0.2	0.0	0.0	4.5	0.0	4.6
Phase Call Probability	0.99		0.97		0.76	1.00	1.00	1.00
Max Out Probability	0.00		0.00		0.00	0.32	1.00	0.29

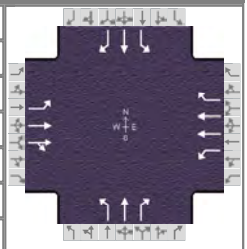
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	141	653	647	94	1277	153	40	53	82	176	55	179
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	2000	1983	1795	1904	1610	1810	1885	1610	1810	1900	1610
Queue Service Time (g_s), s	3.6	11.3	11.9	2.4	13.0	4.0	2.6	3.4	6.3	10.8	3.3	13.0
Cycle Queue Clearance Time (g_c), s	3.6	11.3	11.9	2.4	13.0	4.0	2.6	3.4	6.3	10.8	3.3	13.0
Green Ratio (*g/C*)	0.67	0.64	0.64	0.66	0.63	0.71	0.13	0.10	0.10	0.20	0.15	0.20
Capacity (*c*), veh/h	370	1275	1264	344	2385	1142	240	186	159	306	294	323
Volume-to-Capacity Ratio (*X*)	0.381	0.512	0.512	0.272	0.535	0.134	0.167	0.283	0.517	0.575	0.186	0.555
Back of Queue (*Q*), ft/ln (50 th percentile)	34.9	91	96.6	23.7	92.8	32.9	29.8	45.4	76.8	132.5	41.8	145.7
Back of Queue (*Q*), veh/ln (50 th percentile)	1.4	3.6	3.9	0.9	3.7	1.3	1.2	1.8	3.1	5.3	1.7	5.8
Queue Storage Ratio (*RQ*) (50 th percentile)	0.23	0.00	0.00	0.15	0.00	0.21	0.18	0.00	0.45	0.78	0.00	0.86
Uniform Delay (d_1), s/veh	8.5	4.4	4.7	8.7	5.1	6.1	50.8	54.3	55.6	46.7	47.8	46.8
Incremental Delay (d_2), s/veh	0.6	1.5	1.5	0.4	0.9	0.2	0.3	3.8	11.5	2.6	1.4	6.7
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	9.2	5.8	6.2	9.1	5.9	6.3	51.1	58.1	67.2	49.4	49.2	53.5
Level of Service (LOS)	A	A	A	A	A	A	D	E	E	D	D	D
Approach Delay, s/veh / LOS	6.3	A		6.2	A		60.8	E		51.1	D	
Intersection Delay, s/veh / LOS	14.1						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.07	B	2.08	B	2.47	B	2.31	B
Bicycle LOS Score / LOS	1.68	B	1.74	B	0.78	A	1.16	A

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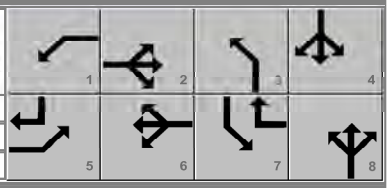
HCS7 Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	12:00 - 1:00 PM	PHF	0.95
Urban Street	US Route 14	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Teckler Boulevard	File Name	SAT Total.xus		
Project Description	SAT No-Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	134	1205	30	89	1213	145	38	50	78	167	52	170

Signal Information												
Cycle, s	130.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
				Green	4.5	1.4	81.4	3.5	3.8	12.8		
				Yellow	3.5	0.0	4.5	3.5	3.5	4.5		
				Red	0.0	0.0	1.5	0.0	0.0	1.5		



Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	1.000	1.000	1.000	0.992	1.000	1.000	1.000	0.992	1.000	1.000	1.000	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	0.952	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.952	0.000		0.952	0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.991	0.991		0.000	0.847		0.000	0.847		0.000	0.847
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Movement Saturation Flow Rate (s), veh/h	1810	3886	97	1795	3808	1610	1810	1885	1610	1810	1900	1610
Proportion of Vehicles Arriving on Green (P)	0.05	0.85	0.64	0.03	0.84	0.63	0.03	0.10	0.10	0.08	0.15	0.15
Incremental Delay Factor (k)	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.50	0.50	0.17	0.50	0.50

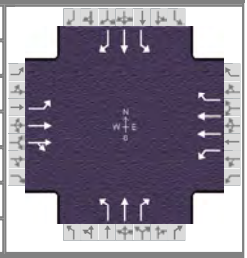
Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)	3.5	6.0	3.5	6.0	3.5	6.0	3.5	6.0
Green Ratio (g/C)	0.67	0.64	0.66	0.63	0.13	0.10	0.20	0.15
Permitted Saturation Flow Rate (s_p), veh/h/ln	440	0	427	0	1370	0	1373	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s	81.4	0.0	81.4	0.0	12.8	0.0	14.8	0.0
Permitted Service Time (g_u), s	68.4	0.0	68.9	0.0	12.8	0.0	9.5	0.0
Permitted Queue Service Time (g_{ps}), s	6.1		3.5		0.0		1.4	
Time to First Blockage (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln				1610		0		1610
Protected Right Effective Green Time (g_R), s				10.8		0.0		5.9

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.389	0.000	1.389	0.000	1.710	0.000	1.557	0.000
Pedestrian F_s / F_{delay}	0.000	0.086	0.000	0.088	0.000	0.159	0.000	0.154
Pedestrian M_{corner} / M_{cw}								
Bicycle c_b / d_b	1275.12	8.54	1252.85	9.07	197.23	52.81	309.22	46.45
Bicycle F_w / F_v	-3.64	1.19	-3.64	1.26	-3.64	0.29	-3.64	0.68

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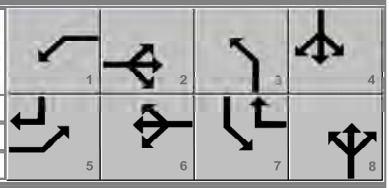
HCS7 Signalized Intersection Results Graphical Summary

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	12:00 - 1:00 PM	PHF	0.95
Urban Street	US Route 14	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Teckler Boulevard	File Name	SAT Total.xus		
Project Description	SAT No-Build				

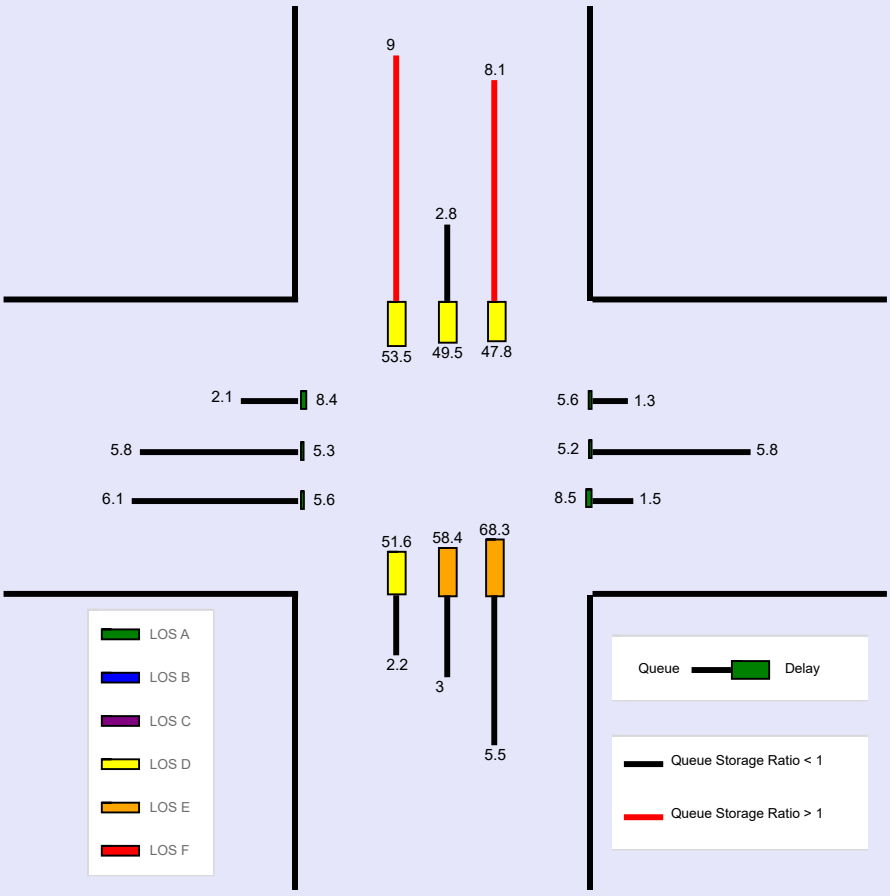


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	134	1205	30	89	1213	145	38	50	78	167	52	170

Signal Information									
Cycle, s	130.0	Reference Phase	2						
Offset, s	0	Reference Point	End						
Uncoordinated	No	Simult. Gap E/W	On						
Force Mode	Fixed	Simult. Gap N/S	On						
				Green	4.5	1.4	81.4	3.5	3.8	12.8
				Yellow	3.5	0.0	4.5	3.5	3.5	4.5
				Red	0.0	0.0	1.5	0.0	0.0	1.5



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (50 th percentile)	34.9	91	96.6	23.7	92.8	32.9	29.8	45.4	76.8	132.5	41.8	145.7
Back of Queue (*Q*), veh/ln (50 th percentile)	1.4	3.6	3.9	0.9	3.7	1.3	1.2	1.8	3.1	5.3	1.7	5.8
Queue Storage Ratio (*RQ*) (50 th percentile)	0.23	0.00	0.00	0.15	0.00	0.21	0.18	0.00	0.45	0.78	0.00	0.86
Control Delay (*d*), s/veh	9.2	5.8	6.2	9.1	5.9	6.3	51.1	58.1	67.2	49.4	49.2	53.5
Level of Service (LOS)	A	A	A	A	A	A	D	E	E	D	D	D
Approach Delay, s/veh / LOS	6.3	A		6.2	A		60.8	E		51.1	D	
Intersection Delay, s/veh / LOS	14.1						B					



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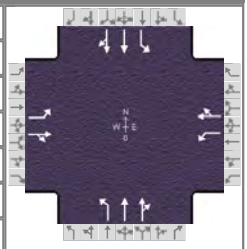
No errors or warnings exist.

--- Comments ---

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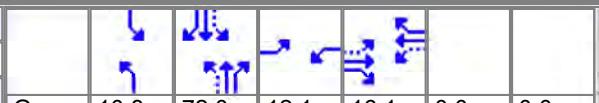
HCS7 Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	7:15 - 8:15 AM	PHF	0.86
Urban Street	Main Street	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Walkup Avenue/Commo…	File Name	AM Existing.xus		
Project Description	AM Existing				

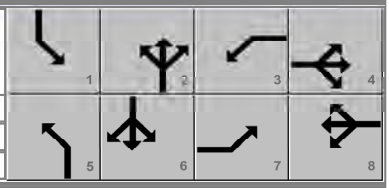


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	43	1	15	3	1	5	18	407	7	10	370	77

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	10.8	72.0	12.1	16.1	0.0	0.0
Yellow	3.5	4.5	3.5	4.5	0.0	0.0
Red	0.0	1.5	0.0	1.5	0.0	0.0



Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	43	1	15	3	1	5	18	407	7	10	370	77
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	1900	1900	1900	1900	1900	1900	2000	1900	1900	2000	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	0	0		0	0		0	1		0	1	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	3	3	3	3	3	3	4	3	3	4	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Turn Bay Length, ft	100	0		65	0		135	0		130	0	
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	25	25	25	25	25	25	35	35	35	35	35	35

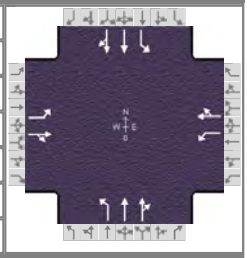
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	15.6	22.1	15.6	22.1	14.3	78.0	14.3	78.0
Yellow Change Interval (*Y*), s	3.5	4.5	3.5	4.5	3.5	4.5	3.5	4.5
Red Clearance Interval (R_c), s	0.0	1.5	0.0	4.5	0.0	1.5	0.0	1.5
Minimum Green (G_{min}), s	3	8	3	8	3	15	3	15
Start-Up Lost Time (*lt*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s	3.0	7.0	3.0	7.0	3.0	2.0	3.0	2.0
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0	No	25	0	No	25	0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft	9.0	12	0	9.0	12	0	9.0	12	0	9.0	12	0
Street Width / Island / Curb	0	0	No	0	0	No	0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

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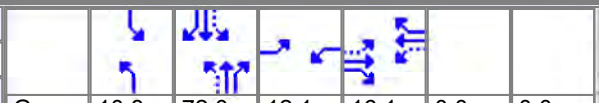
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	7:15 - 8:15 AM	PHF	0.86
Urban Street	Main Street	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Walkup Avenue/Commo…	File Name	AM Existing.xus		
Project Description	AM Existing				

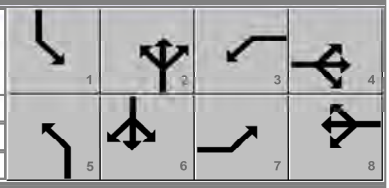


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	43	1	15	3	1	5	18	407	7	10	370	77

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	10.8	72.0	12.1	16.1	0.0	0.0
Yellow	3.5	4.5	3.5	4.5	0.0	0.0
Red	0.0	1.5	0.0	1.5	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	4.0
Phase Duration, s	15.6	22.1	15.6	22.1	14.3	78.0	14.3	78.0
Change Period, (*Y+R c*), s	3.5	9.0	3.5	9.0	3.5	6.0	3.5	6.0
Max Allow Headway (*MAH*), s	4.2	9.7	4.2	9.7	4.0	0.0	4.0	0.0
Queue Clearance Time (*g s*), s	5.0	3.4	2.2	2.5	2.6		2.3	
Green Extension Time (*g e*), s	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00		1.00	
Max Out Probability	0.03	0.97	0.00	0.61	0.00		0.00	

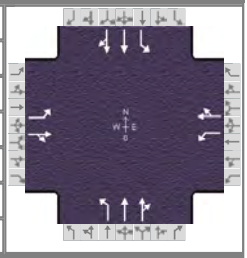
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	50	19		3	7		21	241	240	12	266	254
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1626		1810	1652		1810	1984	1972	1810	1984	1866
Queue Service Time (*g s*), s	3.0	1.4		0.2	0.5		0.6	4.9	5.1	0.3	5.6	6.9
Cycle Queue Clearance Time (*g c*), s	3.0	1.4		0.2	0.5		0.6	4.9	5.1	0.3	5.6	6.9
Green Ratio (*g/C*)	0.19	0.10		0.19	0.10		0.64	0.55	0.55	0.64	0.55	0.55
Capacity (*c*), veh/h	341	164		330	166		640	1099	1092	669	1099	1033
Volume-to-Capacity Ratio (*X*)	0.147	0.114		0.011	0.042		0.033	0.220	0.220	0.017	0.242	0.245
Back of Queue (*Q*), ft/ln (95 th percentile)	64.9	28.1		4.4	10.4		10.3	96	97.1	5.6	106.9	127.8
Back of Queue (*Q*), veh/ln (95 th percentile)	2.6	1.1		0.2	0.4		0.4	3.8	3.9	0.2	4.2	5.1
Queue Storage Ratio (*RQ*) (95 th percentile)	0.65	0.00		0.07	0.00		0.08	0.00	0.00	0.04	0.00	0.00
Uniform Delay (*d 1*), s/veh	43.5	53.2		42.4	52.8		9.0	8.2	8.4	8.8	8.3	10.6
Incremental Delay (*d 2*), s/veh	0.9	1.4		0.1	0.5		0.1	0.5	0.5	0.0	0.5	0.6
Initial Queue Delay (*d 3*), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	44.4	54.6		42.4	53.3		9.1	8.7	8.9	8.9	8.8	11.2
Level of Service (LOS)	D	D		D	D		A	A	A	A	A	B
Approach Delay, s/veh / LOS	47.1	D		49.6	D		8.8	A		9.9	A	
Intersection Delay, s/veh / LOS	12.1						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.31	B	2.32	B	1.90	B	1.90	B
Bicycle LOS Score / LOS	0.60	A	0.50	A	0.90	A	0.93	A

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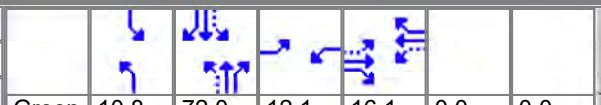
HCS7 Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	7:15 - 8:15 AM	PHF	0.86
Urban Street	Main Street	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Walkup Avenue/Commo…	File Name	AM Existing.xus		
Project Description	AM Existing				

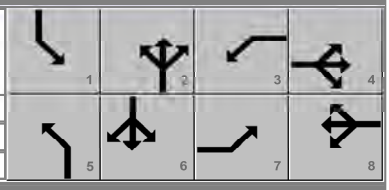


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	43	1	15	3	1	5	18	407	7	10	370	77

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	10.8	72.0	12.1	16.1	0.0	0.0
Yellow	3.5	4.5	3.5	4.5	0.0	0.0
Red	0.0	1.5	0.0	1.5	0.0	0.0



Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.992	1.000	1.000	0.992	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.952	0.000		0.952	0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.856	0.856		0.870	0.870		0.994	0.994		0.940	0.940
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Movement Saturation Flow Rate (s), veh/h	1810	102	1524	1810	275	1377	1810	3890	67	1810	3191	659
Proportion of Vehicles Arriving on Green (P)	0.09	0.10	0.10	0.09	0.10	0.10	0.08	0.74	0.55	0.08	0.74	0.55
Incremental Delay Factor (k)	0.50	0.50		0.50	0.50		0.50	0.50	0.50	0.50	0.50	0.50

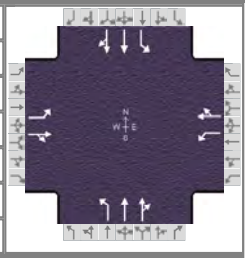
Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)	3.5	9.0	3.5	9.0	3.5	6.0	3.5	6.0
Green Ratio (g/C)	0.19	0.10	0.19	0.10	0.64	0.55	0.64	0.55
Permitted Saturation Flow Rate (s_p), veh/h/ln	1431	0	1416	0	896	0	928	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s	13.1	0.0	13.1	0.0	72.0	0.0	72.0	0.0
Permitted Service Time (g_u), s	10.6	0.0	9.7	0.0	63.1	0.0	64.9	0.0
Permitted Queue Service Time (g_{ps}), s	0.1		0.0		0.2		0.1	
Time to First Blockage (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln								
Protected Right Effective Green Time (g_R), s								

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.557	0.000	1.557	0.000	1.198	0.000	1.198	0.000
Pedestrian F_s / F_{delay}	0.000	0.157	0.000	0.159	0.000	0.103	0.000	0.103
Pedestrian M_{corner} / M_{cw}								
Bicycle c_b / d_b	247.69	49.90	201.54	52.56	1107.69	12.94	1107.69	12.94
Bicycle F_w / F_v	-3.64	0.11	-3.64	0.02	-3.64	0.41	-3.64	0.44

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HCS7 Signalized Intersection Results Graphical Summary

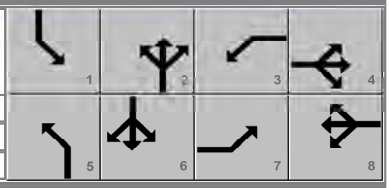
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	7:15 - 8:15 AM	PHF	0.86
Urban Street	Main Street	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Walkup Avenue/Commo…	File Name	AM Existing.xus		
Project Description	AM Existing				



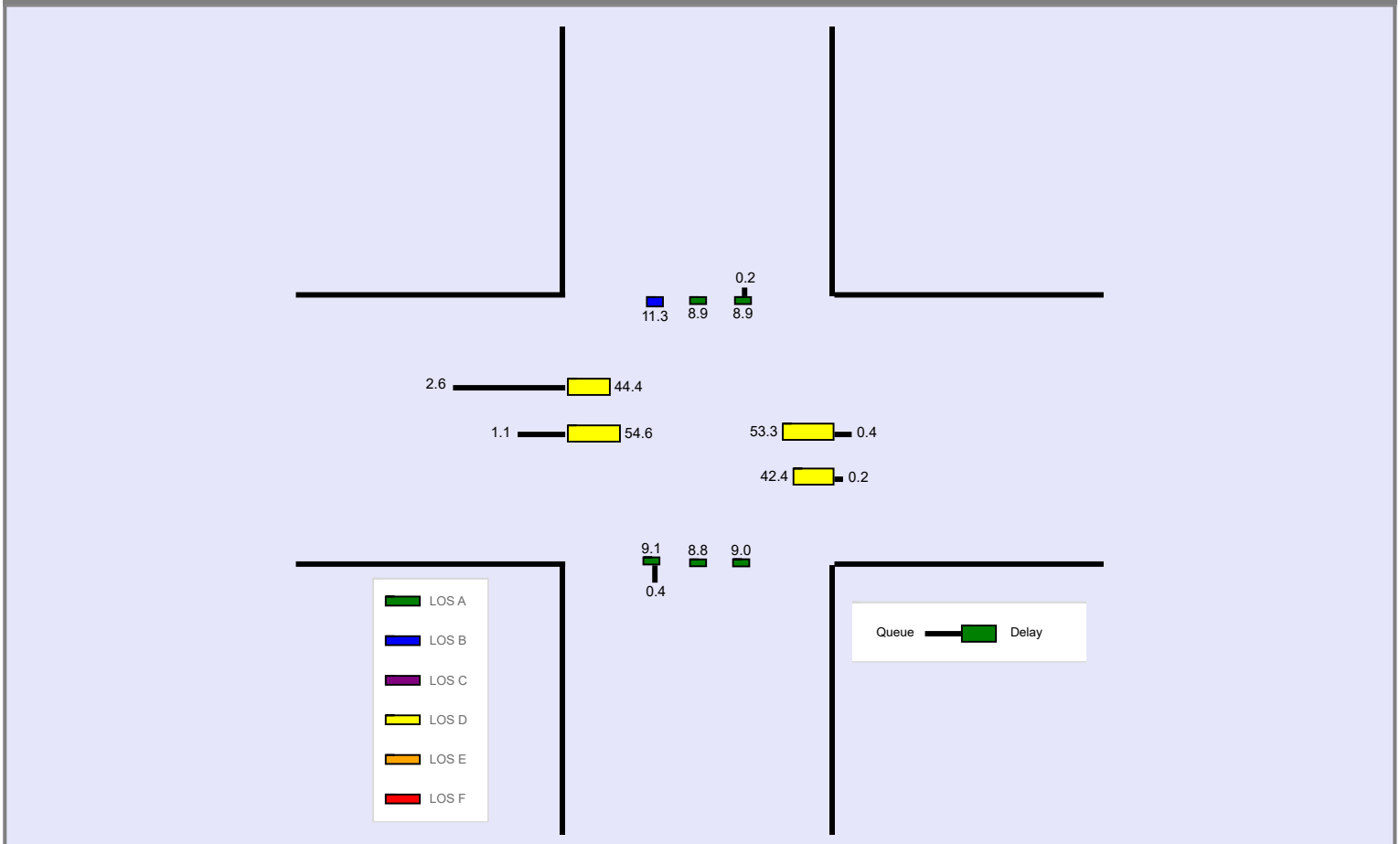
Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	43	1	15	3	1	5	18	407	7	10	370	77

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	10.8	72.0	12.1	16.1	0.0	0.0
Yellow	3.5	4.5	3.5	4.5	0.0	0.0
Red	0.0	1.5	0.0	1.5	0.0	0.0



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)	64.9	28.1		4.4	10.4		10.3	96	97.1	5.6	106.9	127.8
Back of Queue (*Q*), veh/ln (95 th percentile)	2.6	1.1		0.2	0.4		0.4	3.8	3.9	0.2	4.2	5.1
Queue Storage Ratio (*RQ*) (95 th percentile)	0.65	0.00		0.07	0.00		0.08	0.00	0.00	0.04	0.00	0.00
Control Delay (*d*), s/veh	44.4	54.6		42.4	53.3		9.1	8.7	8.9	8.9	8.8	11.2
Level of Service (LOS)	D	D		D	D		A	A	A	A	A	B
Approach Delay, s/veh / LOS	47.1	D		49.6	D		8.8	A		9.9	A	
Intersection Delay, s/veh / LOS	12.1						B					



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--- Messages ---

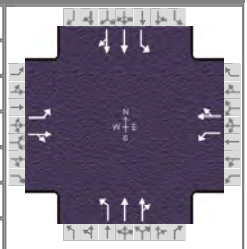
No errors or warnings exist.

--- Comments ---

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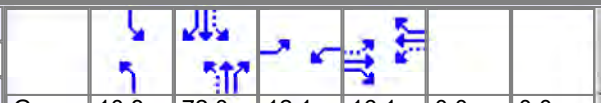
HCS7 Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	7:15 - 8:15 AM	PHF	0.86
Urban Street	Main Street	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Walkup Avenue/Commo…	File Name	AM No-Build.xus		
Project Description	AM No-Build				

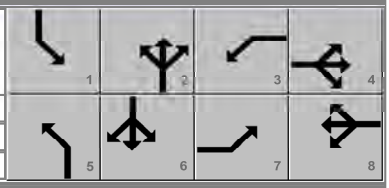


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	43	1	15	3	1	5	19	420	7	10	383	77

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	10.8	72.0	12.1	16.1	0.0	0.0
Yellow	3.5	4.5	3.5	4.5	0.0	0.0
Red	0.0	1.5	0.0	1.5	0.0	0.0



Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	43	1	15	3	1	5	19	420	7	10	383	77
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	1900	1900	1900	1900	1900	1900	2000	1900	1900	2000	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	0	0		0	0		0	1		0	1	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	3	3	3	3	3	3	4	3	3	4	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Turn Bay Length, ft	100	0		65	0		135	0		130	0	
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	25	25	25	25	25	25	35	35	35	35	35	35

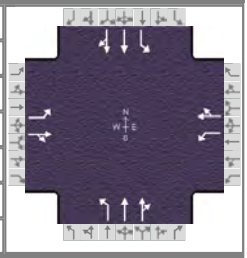
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	15.6	22.1	15.6	22.1	14.3	78.0	14.3	78.0
Yellow Change Interval (*Y*), s	3.5	4.5	3.5	4.5	3.5	4.5	3.5	4.5
Red Clearance Interval (R_c), s	0.0	1.5	0.0	4.5	0.0	1.5	0.0	1.5
Minimum Green (G_{min}), s	3	8	3	8	3	15	3	15
Start-Up Lost Time (*lt*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s	3.0	7.0	3.0	7.0	3.0	2.0	3.0	2.0
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0	No	25	0	No	25	0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft	9.0	12	0	9.0	12	0	9.0	12	0	9.0	12	0
Street Width / Island / Curb	0	0	No	0	0	No	0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

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HCS7 Signalized Intersection Results Summary

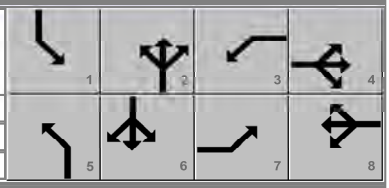
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	7:15 - 8:15 AM	PHF	0.86
Urban Street	Main Street	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Walkup Avenue/Commo…	File Name	AM No-Build.xus		
Project Description	AM No-Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	43	1	15	3	1	5	19	420	7	10	383	77

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	10.8	72.0	12.1	16.1	0.0	0.0
Yellow	3.5	4.5	3.5	4.5	0.0	0.0
Red	0.0	1.5	0.0	1.5	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	4.0
Phase Duration, s	15.6	22.1	15.6	22.1	14.3	78.0	14.3	78.0
Change Period, (*Y+R c*), s	3.5	9.0	3.5	9.0	3.5	6.0	3.5	6.0
Max Allow Headway (*MAH*), s	4.2	9.7	4.2	9.7	4.0	0.0	4.0	0.0
Queue Clearance Time (*g s*), s	5.0	3.4	2.2	2.5	2.6		2.3	
Green Extension Time (*g e*), s	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00		1.00	
Max Out Probability	0.03	0.97	0.00	0.61	0.00		0.00	

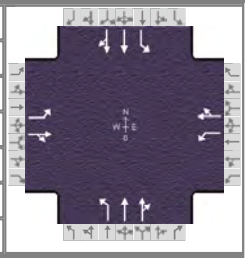
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	50	19		3	7		22	249	248	12	274	261
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1626		1810	1652		1810	1984	1973	1810	1984	1869
Queue Service Time (*g s*), s	3.0	1.4		0.2	0.5		0.6	5.1	5.2	0.3	5.8	7.1
Cycle Queue Clearance Time (*g c*), s	3.0	1.4		0.2	0.5		0.6	5.1	5.2	0.3	5.8	7.1
Green Ratio (*g/C*)	0.19	0.10		0.19	0.10		0.64	0.55	0.55	0.64	0.55	0.55
Capacity (*c*), veh/h	341	164		330	166		633	1099	1093	662	1099	1035
Volume-to-Capacity Ratio (*X*)	0.147	0.114		0.011	0.042		0.035	0.226	0.227	0.018	0.249	0.252
Back of Queue (*Q*), ft/ln (95 th percentile)	64.9	28.1		4.4	10.4		10.8	99.4	100.6	5.6	110.5	131.1
Back of Queue (*Q*), veh/ln (95 th percentile)	2.6	1.1		0.2	0.4		0.4	3.9	4.0	0.2	4.4	5.2
Queue Storage Ratio (*RQ*) (95 th percentile)	0.65	0.00		0.07	0.00		0.08	0.00	0.00	0.04	0.00	0.00
Uniform Delay (*d 1*), s/veh	43.5	53.2		42.4	52.8		9.0	8.3	8.5	8.8	8.3	10.6
Incremental Delay (*d 2*), s/veh	0.9	1.4		0.1	0.5		0.1	0.5	0.5	0.0	0.5	0.6
Initial Queue Delay (*d 3*), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	44.4	54.6		42.4	53.3		9.1	8.7	8.9	8.9	8.9	11.2
Level of Service (LOS)	D	D		D	D		A	A	A	A	A	B
Approach Delay, s/veh / LOS	47.1	D		49.6	D		8.8	A		10.0	A	
Intersection Delay, s/veh / LOS	12.1						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.31	B	2.32	B	1.90	B	1.90	B
Bicycle LOS Score / LOS	0.60	A	0.50	A	0.92	A	0.94	A

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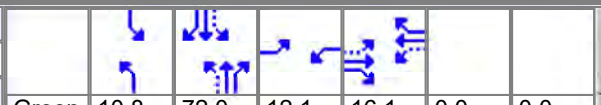
HCS7 Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	7:15 - 8:15 AM	PHF	0.86
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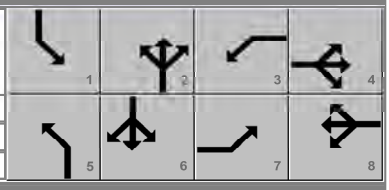


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	43	1	15	3	1	5	19	420	7	10	383	77

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	10.8	72.0	12.1	16.1	0.0	0.0
Yellow	3.5	4.5	3.5	4.5	0.0	0.0
Red	0.0	1.5	0.0	1.5	0.0	0.0



Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.992	1.000	1.000	0.992	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.952	0.000		0.952	0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.856	0.856		0.870	0.870		0.994	0.994		0.942	0.942
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Movement Saturation Flow Rate (s), veh/h	1810	102	1524	1810	275	1377	1810	3892	65	1810	3212	641
Proportion of Vehicles Arriving on Green (P)	0.09	0.10	0.10	0.09	0.10	0.10	0.08	0.74	0.55	0.08	0.74	0.55
Incremental Delay Factor (k)	0.50	0.50		0.50	0.50		0.50	0.50	0.50	0.50	0.50	0.50

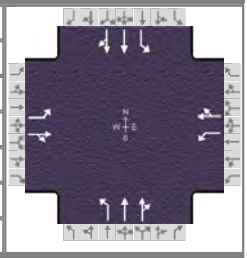
Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)	3.5	9.0	3.5	9.0	3.5	6.0	3.5	6.0
Green Ratio (g/C)	0.19	0.10	0.19	0.10	0.64	0.55	0.64	0.55
Permitted Saturation Flow Rate (s_p), veh/h/ln	1431	0	1416	0	883	0	915	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s	13.1	0.0	13.1	0.0	72.0	0.0	72.0	0.0
Permitted Service Time (g_u), s	10.6	0.0	9.7	0.0	62.9	0.0	64.8	0.0
Permitted Queue Service Time (g_{ps}), s	0.1		0.0		0.2		0.1	
Time to First Blockage (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln								
Protected Right Effective Green Time (g_R), s								

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.557	0.000	1.557	0.000	1.198	0.000	1.198	0.000
Pedestrian F_s / F_{delay}	0.000	0.157	0.000	0.159	0.000	0.103	0.000	0.103
Pedestrian M_{corner} / M_{cw}								
Bicycle c_b / d_b	247.69	49.90	201.54	52.56	1107.69	12.94	1107.69	12.94
Bicycle F_w / F_v	-3.64	0.11	-3.64	0.02	-3.64	0.43	-3.64	0.45

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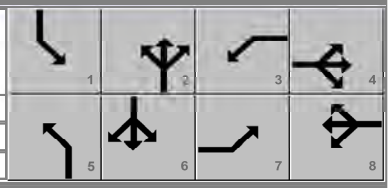
HCS7 Signalized Intersection Results Graphical Summary

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	7:15 - 8:15 AM	PHF	0.86
Urban Street	Main Street	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Walkup Avenue/Commo…	File Name	AM No-Build.xus		
Project Description	AM No-Build				



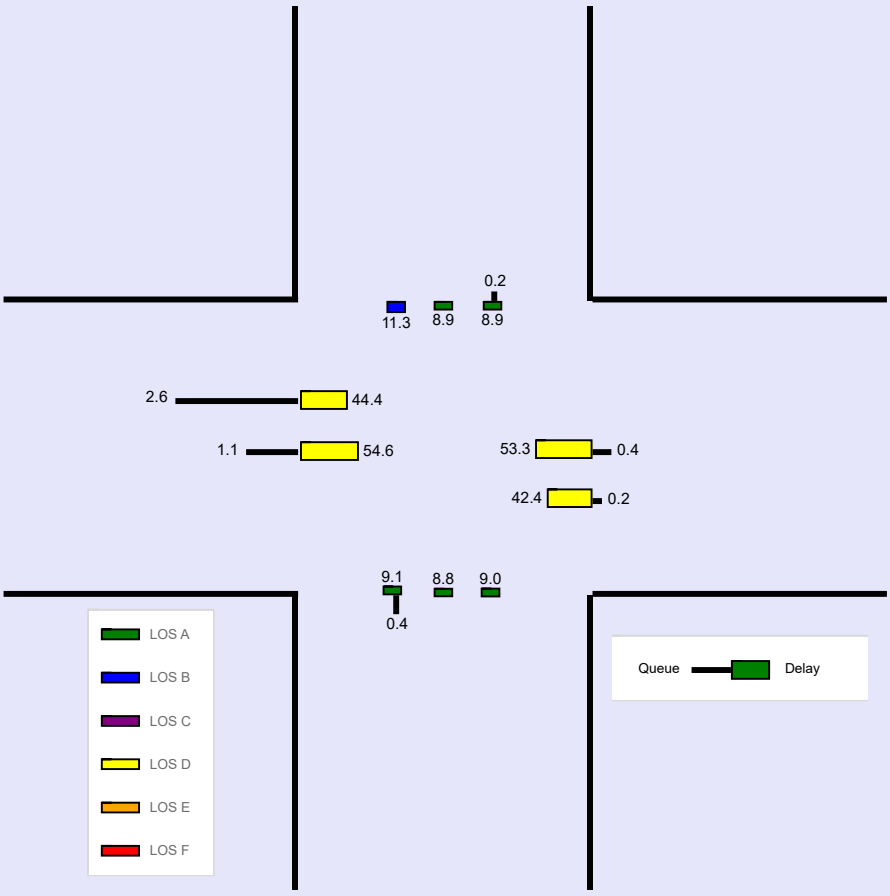
Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	43	1	15	3	1	5	19	420	7	10	383	77

Signal Information									
Cycle, s	130.0	Reference Phase	2						
Offset, s	0	Reference Point	End						
Uncoordinated	No	Simult. Gap E/W	On						
Force Mode	Fixed	Simult. Gap N/S	On						



Green	10.8	72.0	12.1	16.1	0.0	0.0
Yellow	3.5	4.5	3.5	4.5	0.0	0.0
Red	0.0	1.5	0.0	1.5	0.0	0.0

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)	64.9	28.1		4.4	10.4		10.8	99.4	100.6	5.6	110.5	131.1
Back of Queue (*Q*), veh/ln (95 th percentile)	2.6	1.1		0.2	0.4		0.4	3.9	4.0	0.2	4.4	5.2
Queue Storage Ratio (*RQ*) (95 th percentile)	0.65	0.00		0.07	0.00		0.08	0.00	0.00	0.04	0.00	0.00
Control Delay (*d*), s/veh	44.4	54.6		42.4	53.3		9.1	8.7	8.9	8.9	8.9	11.2
Level of Service (LOS)	D	D		D	D		A	A	A	A	A	B
Approach Delay, s/veh / LOS	47.1	D		49.6	D		8.8	A		10.0	A	
Intersection Delay, s/veh / LOS	12.1						B					



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--- Messages ---

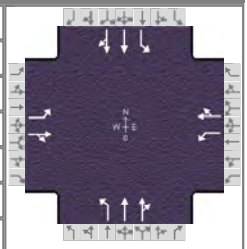
No errors or warnings exist.

--- Comments ---

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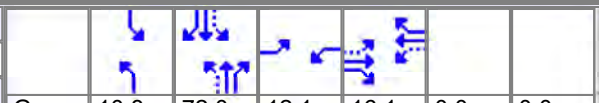
HCS7 Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	7:15 - 8:15 AM	PHF	0.86
Urban Street	Main Street	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Walkup Avenue/Commo…	File Name	AM Total.xus		
Project Description	AM Total				

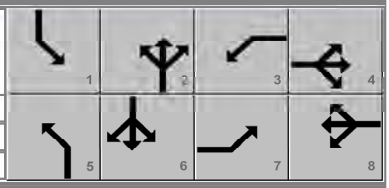


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	61	6	38	3	2	5	27	420	7	10	383	85

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	10.8	72.0	12.1	16.1	0.0	0.0
Yellow	3.5	4.5	3.5	4.5	0.0	0.0
Red	0.0	1.5	0.0	1.5	0.0	0.0



Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	61	6	38	3	2	5	27	420	7	10	383	85
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	1900	1900	1900	1900	1900	1900	2000	1900	1900	2000	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	0	0		0	0		0	1		0	1	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	3	3	3	3	3	3	4	3	3	4	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Turn Bay Length, ft	100	0		65	0		135	0		130	0	
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	25	25	25	25	25	25	35	35	35	35	35	35

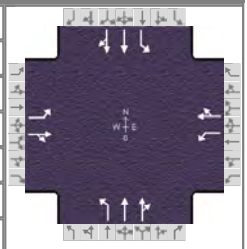
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	15.6	22.1	15.6	22.1	14.3	78.0	14.3	78.0
Yellow Change Interval (*Y*), s	3.5	4.5	3.5	4.5	3.5	4.5	3.5	4.5
Red Clearance Interval (R_c), s	0.0	1.5	0.0	4.5	0.0	1.5	0.0	1.5
Minimum Green (G_{min}), s	3	8	3	8	3	15	3	15
Start-Up Lost Time (*lt*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s	3.0	7.0	3.0	7.0	3.0	2.0	3.0	2.0
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0	No	25	0	No	25	0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft	9.0	12	0	9.0	12	0	9.0	12	0	9.0	12	0
Street Width / Island / Curb	0	0	No	0	0	No	0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

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HCS7 Signalized Intersection Results Summary

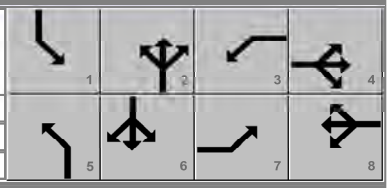
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	7:15 - 8:15 AM	PHF	0.86
Urban Street	Main Street	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Walkup Avenue/Commo…	File Name	AM Total.xus		
Project Description	AM Total				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	61	6	38	3	2	5	27	420	7	10	383	85

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	10.8	72.0	12.1	16.1	0.0	0.0
Yellow	3.5	4.5	3.5	4.5	0.0	0.0
Red	0.0	1.5	0.0	1.5	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	4.0
Phase Duration, s	15.6	22.1	15.6	22.1	14.3	78.0	14.3	78.0
Change Period, (*Y+R c*), s	3.5	9.0	3.5	9.0	3.5	6.0	3.5	6.0
Max Allow Headway (*MAH*), s	4.2	9.7	4.2	9.7	4.0	0.0	4.0	0.0
Queue Clearance Time (*g s*), s	6.3	5.8	2.2	2.6	2.8		2.3	
Green Extension Time (*g e*), s	0.1	0.3	0.0	0.4	0.0	0.0	0.0	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00		1.00	
Max Out Probability	0.17	1.00	0.00	0.71	0.00		0.00	

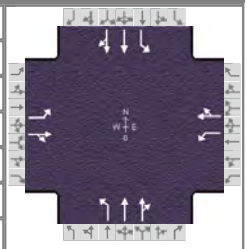
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	71	51		3	8		31	249	248	12	279	265
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1644		1810	1684		1810	1984	1973	1810	1984	1860
Queue Service Time (*g s*), s	4.3	3.8		0.2	0.6		0.8	5.1	5.2	0.3	5.9	7.4
Cycle Queue Clearance Time (*g c*), s	4.3	3.8		0.2	0.6		0.8	5.1	5.2	0.3	5.9	7.4
Green Ratio (*g/C*)	0.19	0.10		0.19	0.10		0.64	0.55	0.55	0.64	0.55	0.55
Capacity (*c*), veh/h	340	166		302	170		628	1099	1093	662	1099	1030
Volume-to-Capacity Ratio (*X*)	0.209	0.309		0.012	0.048		0.050	0.226	0.227	0.018	0.254	0.257
Back of Queue (*Q*), ft/ln (95 th percentile)	93.5	80.7		4.4	12.1		15.5	99.4	100.6	5.6	112.9	136
Back of Queue (*Q*), veh/ln (95 th percentile)	3.7	3.2		0.2	0.5		0.6	3.9	4.0	0.2	4.5	5.4
Queue Storage Ratio (*RQ*) (95 th percentile)	0.94	0.00		0.07	0.00		0.11	0.00	0.00	0.04	0.00	0.00
Uniform Delay (*d 1*), s/veh	44.0	54.2		42.5	52.8		9.1	8.3	8.5	8.8	8.4	10.8
Incremental Delay (*d 2*), s/veh	1.4	4.8		0.1	0.5		0.2	0.5	0.5	0.0	0.6	0.6
Initial Queue Delay (*d 3*), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	45.4	59.0		42.5	53.4		9.2	8.7	8.9	8.9	8.9	11.4
Level of Service (LOS)	D	E		D	D		A	A	A	A	A	B
Approach Delay, s/veh / LOS	51.1	D		50.1	D		8.9	A		10.1	B	
Intersection Delay, s/veh / LOS	14.1						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.31	B	2.32	B	1.90	B	1.90	B
Bicycle LOS Score / LOS	0.69	A	0.51	A	0.92	A	0.95	A

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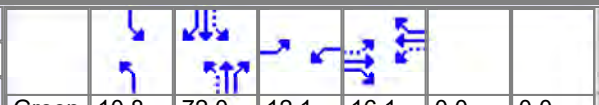
HCS7 Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	7:15 - 8:15 AM	PHF	0.86
Urban Street	Main Street	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Walkup Avenue/Commo…	File Name	AM Total.xus		
Project Description	AM Total				

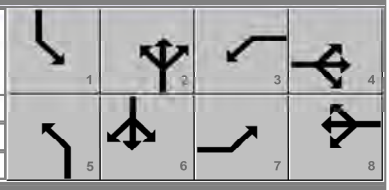


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	61	6	38	3	2	5	27	420	7	10	383	85

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	10.8	72.0	12.1	16.1	0.0	0.0
Yellow	3.5	4.5	3.5	4.5	0.0	0.0
Red	0.0	1.5	0.0	1.5	0.0	0.0



Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.992	1.000	1.000	0.992	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.952	0.000		0.952	0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.865	0.865		0.886	0.886		0.994	0.994		0.937	0.937
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Movement Saturation Flow Rate (s), veh/h	1810	224	1420	1810	481	1203	1810	3892	65	1810	3150	694
Proportion of Vehicles Arriving on Green (P)	0.09	0.10	0.10	0.09	0.10	0.10	0.08	0.74	0.55	0.08	0.74	0.55
Incremental Delay Factor (k)	0.50	0.50		0.50	0.50		0.50	0.50	0.50	0.50	0.50	0.50

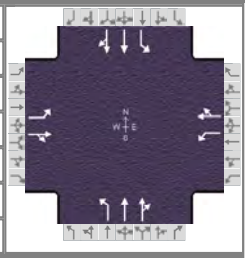
Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)	3.5	9.0	3.5	9.0	3.5	6.0	3.5	6.0
Green Ratio (g/C)	0.19	0.10	0.19	0.10	0.64	0.55	0.64	0.55
Permitted Saturation Flow Rate (s_p), veh/h/ln	1429	0	1375	0	876	0	915	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s	13.1	0.0	13.1	0.0	72.0	0.0	72.0	0.0
Permitted Service Time (g_u), s	10.5	0.0	7.3	0.0	62.6	0.0	64.8	0.0
Permitted Queue Service Time (g_{ps}), s	0.1		0.0		0.3		0.1	
Time to First Blockage (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln								
Protected Right Effective Green Time (g_R), s								

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.557	0.000	1.557	0.000	1.198	0.000	1.198	0.000
Pedestrian F_s / F_{delay}	0.000	0.157	0.000	0.159	0.000	0.103	0.000	0.103
Pedestrian M_{corner} / M_{cw}								
Bicycle c_b / d_b	247.69	49.90	201.54	52.56	1107.69	12.94	1107.69	12.94
Bicycle F_w / F_v	-3.64	0.20	-3.64	0.02	-3.64	0.44	-3.64	0.46

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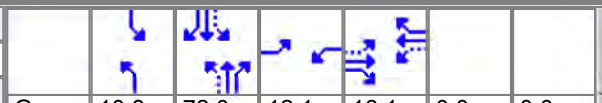
HCS7 Signalized Intersection Results Graphical Summary

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	7:15 - 8:15 AM	PHF	0.86
Urban Street	Main Street	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Walkup Avenue/Commo…	File Name	AM Total.xus		
Project Description	AM Total				

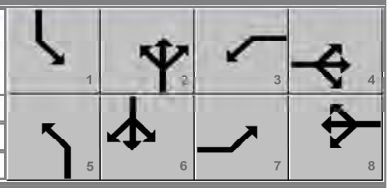


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	61	6	38	3	2	5	27	420	7	10	383	85

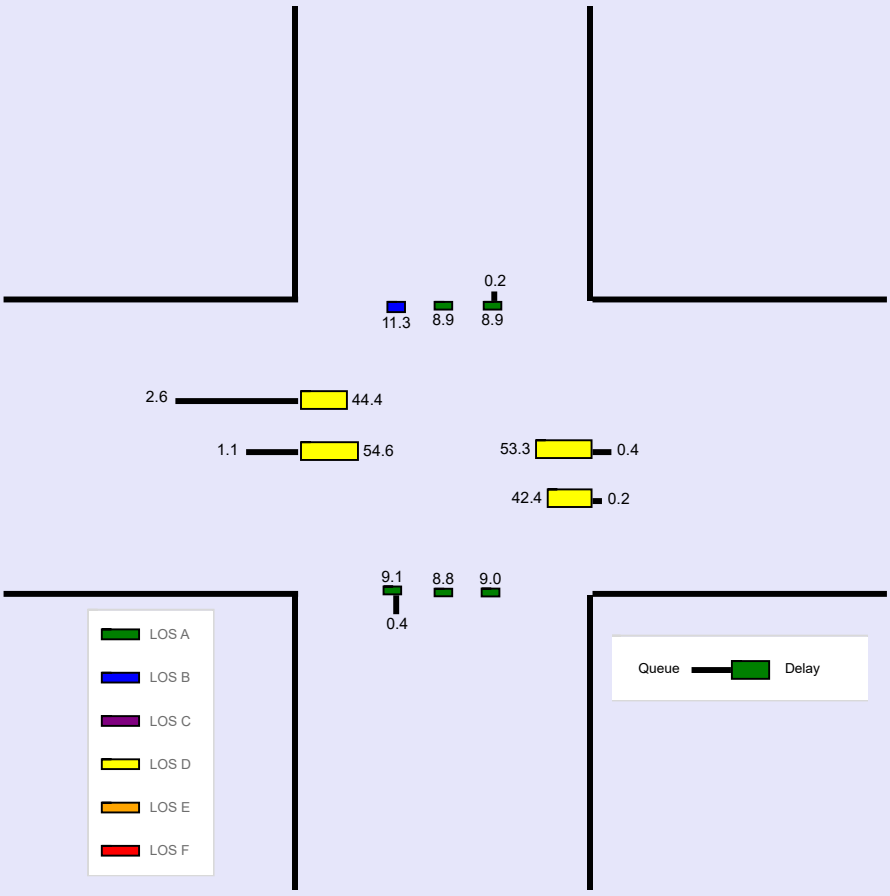
Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	10.8	72.0	12.1	16.1	0.0	0.0
Yellow	3.5	4.5	3.5	4.5	0.0	0.0
Red	0.0	1.5	0.0	1.5	0.0	0.0



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)	93.5	80.7		4.4	12.1		15.5	99.4	100.6	5.6	112.9	136
Back of Queue (*Q*), veh/ln (95 th percentile)	3.7	3.2		0.2	0.5		0.6	3.9	4.0	0.2	4.5	5.4
Queue Storage Ratio (*RQ*) (95 th percentile)	0.94	0.00		0.07	0.00		0.11	0.00	0.00	0.04	0.00	0.00
Control Delay (*d*), s/veh	45.4	59.0		42.5	53.4		9.2	8.7	8.9	8.9	8.9	11.4
Level of Service (LOS)	D	E		D	D		A	A	A	A	A	B
Approach Delay, s/veh / LOS	51.1	D		50.1	D		8.9	A		10.1	B	
Intersection Delay, s/veh / LOS	14.1						B					



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--- Messages ---

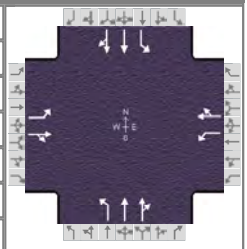
No errors or warnings exist.

--- Comments ---

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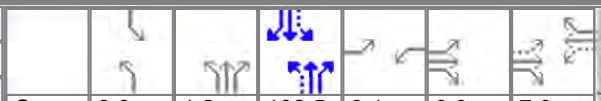
HCS7 Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	4:00 - 5:00 PM	PHF	0.97
Urban Street	Main Street	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Walkup Avenue/Commo…	File Name	PM Existing.xus		
Project Description	PM Existing				

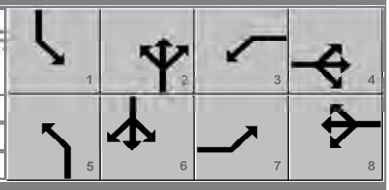


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	111	6	47	30	9	20	28	570	17	8	642	139

Signal Information			
Cycle, s	145.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	0.8	1.2	102.5	3.1	3.9	7.9
Yellow	3.5	0.0	4.5	3.5	3.5	4.5
Red	0.0	0.0	1.5	0.0	0.0	4.5



Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	111	6	47	30	9	20	28	570	17	8	642	139
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	1900	1900	1900	1900	1900	1900	2000	1900	1900	2000	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	0	0		0	0		0	1		0	1	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	3	3	3	3	3	3	4	3	3	4	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Turn Bay Length, ft	100	0		65	0		135	0		130	0	
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	25	25	25	25	25	25	35	35	35	35	35	35

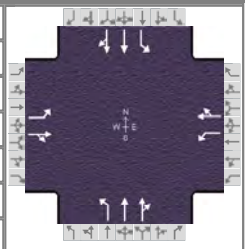
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	21.8	24.6	21.8	24.6	14.5	84.1	14.5	84.1
Yellow Change Interval (*Y*), s	3.5	4.5	3.5	4.5	3.5	4.5	3.5	4.5
Red Clearance Interval (R_c), s	0.0	1.5	0.0	4.5	0.0	1.5	0.0	1.5
Minimum Green (G_{min}), s	3	8	3	8	3	15	3	15
Start-Up Lost Time (*lt*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s	3.0	7.0	3.0	7.0	3.0	2.0	3.0	2.0
Recall Mode	Off	Off	Off	Off	Off	Min	Off	Min
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0	No	25	0	No	25	0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft	9.0	12	0	9.0	12	0	9.0	12	0	9.0	12	0
Street Width / Island / Curb	0	0	No	0	0	No	0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

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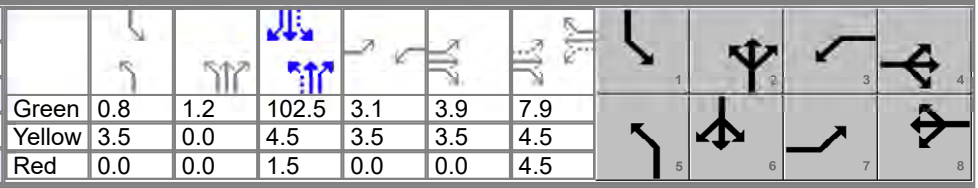
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	4:00 - 5:00 PM	PHF	0.97
Urban Street	Main Street	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Walkup Avenue/Commo…	File Name	PM Existing.xus		
Project Description	PM Existing				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	111	6	47	30	9	20	28	570	17	8	642	139

Signal Information			
Cycle, s	145.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	0.8	1.2	102.5	3.1	3.9	7.9		
Yellow	3.5	0.0	4.5	3.5	3.5	4.5		
Red	0.0	0.0	1.5	0.0	0.0	4.5		

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	4.0
Phase Duration, s	14.0	24.3	6.6	16.9	5.6	109.7	4.3	108.5
Change Period, (*Y+R c*), s	3.5	9.0	3.5	9.0	3.5	6.0	3.5	6.0
Max Allow Headway (*MAH*), s	4.2	9.7	4.2	9.7	4.0	0.0	4.0	0.0
Queue Clearance Time (*g s*), s	10.4	6.5	4.3	4.5	2.7		2.2	
Green Extension Time (*g e*), s	0.2	1.2	0.0	1.0	0.0	0.0	0.0	0.0
Phase Call Probability	0.99	1.00	0.71	0.99	0.69		0.28	
Max Out Probability	0.04	0.01	0.00	0.05	0.00		0.00	

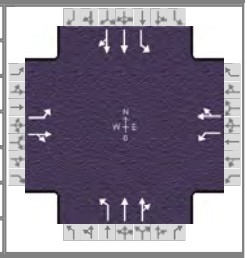
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	114	55		31	30		29	304	301	8	415	390
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1638		1810	1690		1810	1984	1964	1810	1984	1861
Queue Service Time (*g s*), s	8.4	4.5		2.3	2.5		0.7	1.3	1.7	0.2	2.4	5.9
Cycle Queue Clearance Time (*g c*), s	8.4	4.5		2.3	2.5		0.7	1.3	1.7	0.2	2.4	5.9
Green Ratio (*g/C*)	0.14	0.11		0.08	0.05		0.72	0.72	0.72	0.71	0.71	0.71
Capacity (*c*), veh/h	233	173		163	92		533	1420	1405	631	1403	1316
Volume-to-Capacity Ratio (*X*)	0.491	0.316		0.189	0.324		0.054	0.214	0.214	0.013	0.296	0.296
Back of Queue (*Q*), ft/ln (95 th percentile)	180	95.1		50	58.9		10.9	25.3	30.8	3.2	42.8	92.8
Back of Queue (*Q*), veh/ln (95 th percentile)	7.2	3.8		2.0	2.4		0.4	1.0	1.2	0.1	1.7	3.7
Queue Storage Ratio (*RQ*) (95 th percentile)	1.80	0.00		0.77	0.00		0.08	0.00	0.00	0.02	0.00	0.00
Uniform Delay (*d 1*), s/veh	57.2	60.0		63.0	66.0		5.8	1.0	1.3	6.0	1.3	3.5
Incremental Delay (*d 2*), s/veh	1.6	4.7		0.6	9.1		0.0	0.3	0.3	0.0	0.5	0.6
Initial Queue Delay (*d 3*), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	58.8	64.8		63.5	75.0		5.9	1.3	1.6	6.0	1.8	4.0
Level of Service (LOS)	E	E		E	E		A	A	A	A	A	A
Approach Delay, s/veh / LOS	60.7	E		69.2	E		1.7	A		2.9	A	
Intersection Delay, s/veh / LOS	10.7						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.32	B	2.32	B	1.87	B	1.87	B
Bicycle LOS Score / LOS	0.77	A	0.59	A	1.01	A	1.16	A

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HCS7 Signalized Intersection Intermediate Values

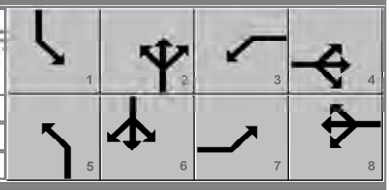
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	4:00 - 5:00 PM	PHF	0.97
Urban Street	Main Street	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Walkup Avenue/Commo…	File Name	PM Existing.xus		
Project Description	PM Existing				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	111	6	47	30	9	20	28	570	17	8	642	139

Signal Information			
Cycle, s	145.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	0.8	1.2	102.5	3.1	3.9	7.9
Yellow	3.5	0.0	4.5	3.5	3.5	4.5
Red	0.0	0.0	1.5	0.0	0.0	4.5



Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.992	1.000	1.000	0.992	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.952	0.000		0.952	0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.862	0.862		0.890	0.890		0.990	0.990		0.938	0.938
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Movement Saturation Flow Rate (s), veh/h	1810	185	1453	1810	525	1166	1810	3834	114	1810	3162	684
Proportion of Vehicles Arriving on Green (P)	0.07	0.11	0.11	0.02	0.05	0.05	0.01	0.95	0.72	0.01	0.94	0.71
Incremental Delay Factor (k)	0.11	0.50		0.11	0.50		0.11	0.50	0.50	0.11	0.50	0.50

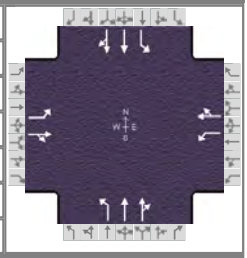
Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)	3.5	9.0	3.5	9.0	3.5	6.0	3.5	6.0
Green Ratio (g/C)	0.14	0.11	0.08	0.05	0.72	0.72	0.71	0.71
Permitted Saturation Flow Rate (s_p), veh/h/ln	1402	0	1371	0	687	0	828	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s	9.9	0.0	7.9	0.0	102.5	0.0	102.5	0.0
Permitted Service Time (g_u), s	5.5	0.0	7.9	0.0	96.7	0.0	100.1	0.0
Permitted Queue Service Time (g_{ps}), s	0.4		0.0		0.3		0.0	
Time to First Blockage (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln								
Protected Right Effective Green Time (g_R), s								

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.557	0.000	1.557	0.000	1.198	0.000	1.198	0.000
Pedestrian F_s / F_{delay}	0.000	0.161	0.000	0.167	0.000	0.071	0.000	0.073
Pedestrian M_{corner} / M_{cw}								
Bicycle c_b / d_b	252.37	55.36	109.29	64.79	1430.95	5.87	1414.21	6.22
Bicycle F_w / F_v	-3.64	0.28	-3.64	0.10	-3.64	0.52	-3.64	0.67

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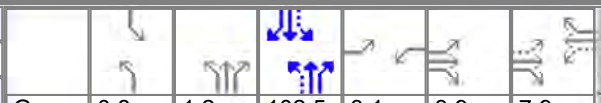
HCS7 Signalized Intersection Results Graphical Summary

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	4:00 - 5:00 PM	PHF	0.97
Urban Street	Main Street	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Walkup Avenue/Commo…	File Name	PM Existing.xus		
Project Description	PM Existing				

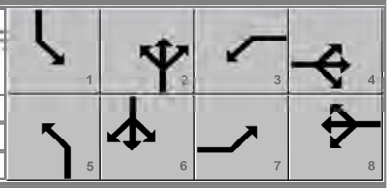


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	111	6	47	30	9	20	28	570	17	8	642	139

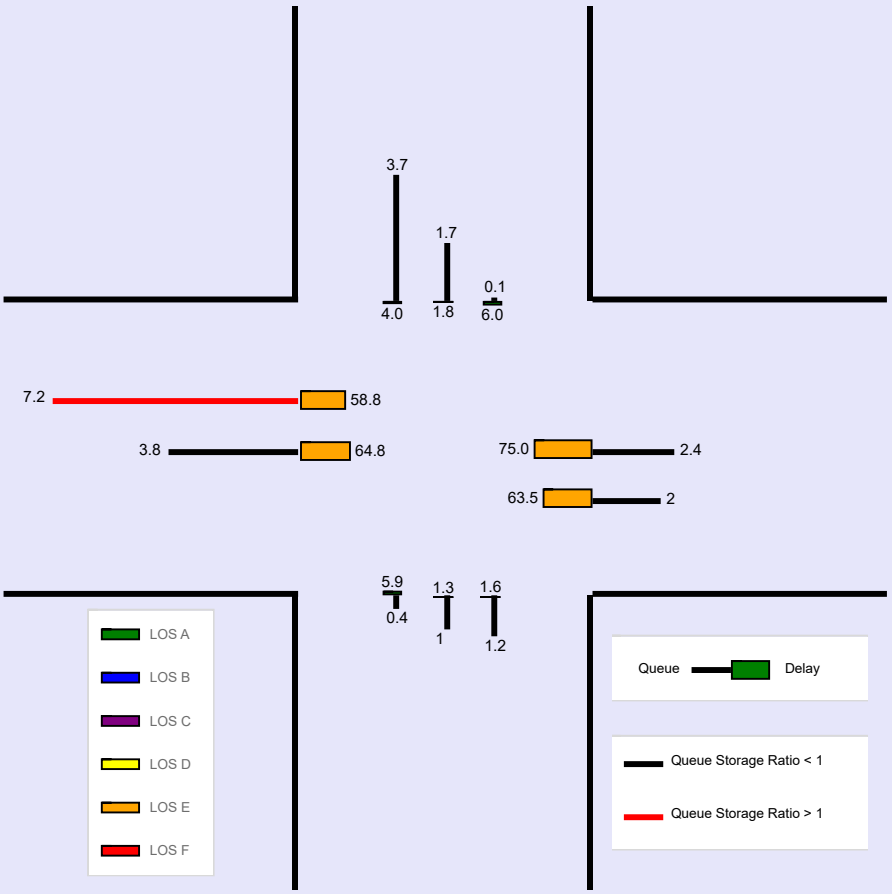
Signal Information			
Cycle, s	145.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	0.8	1.2	102.5	3.1	3.9	7.9						
Yellow	3.5	0.0	4.5	3.5	3.5	4.5						
Red	0.0	0.0	1.5	0.0	0.0	4.5						



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)	180	95.1		50	58.9		10.9	25.3	30.8	3.2	42.8	92.8
Back of Queue (*Q*), veh/ln (95 th percentile)	7.2	3.8		2.0	2.4		0.4	1.0	1.2	0.1	1.7	3.7
Queue Storage Ratio (*RQ*) (95 th percentile)	1.80	0.00		0.77	0.00		0.08	0.00	0.00	0.02	0.00	0.00
Control Delay (*d*), s/veh	58.8	64.8		63.5	75.0		5.9	1.3	1.6	6.0	1.8	4.0
Level of Service (LOS)	E	E		E	E		A	A	A	A	A	A
Approach Delay, s/veh / LOS	60.7	E		69.2	E		1.7	A		2.9	A	
Intersection Delay, s/veh / LOS	10.7						B					



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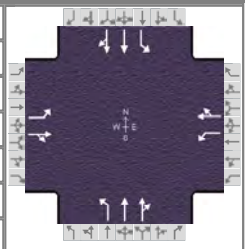
WARNING: Since queue spillover from turn lanes and spillback into upstream intersections is not accounted for in the HCM procedures, use of a simulation tool may be advised in situations where the Queue Storage Ratio exceeds 1.0.

--- Comments ---

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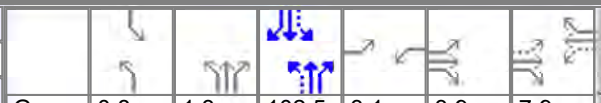
HCS7 Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	4:00 - 5:00 PM	PHF	0.97
Urban Street	Main Street	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Walkup Avenue/Commo…	File Name	PM No-Build.xus		
Project Description	PM No-Build				

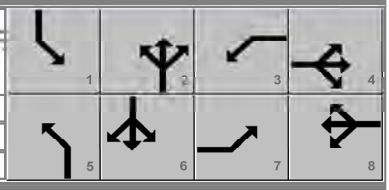


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	111	6	47	30	9	20	29	590	18	8	665	143

Signal Information			
Cycle, s	145.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	0.8	1.3	102.5	3.1	3.9	7.9						
Yellow	3.5	0.0	4.5	3.5	3.5	4.5						
Red	0.0	0.0	1.5	0.0	0.0	4.5						



Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	111	6	47	30	9	20	29	590	18	8	665	143
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	1900	1900	1900	1900	1900	1900	2000	1900	1900	2000	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	0	0		0	0		0	1		0	1	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	3	3	3	3	3	3	4	3	3	4	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Turn Bay Length, ft	100	0		65	0		135	0		130	0	
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	25	25	25	25	25	25	35	35	35	35	35	35

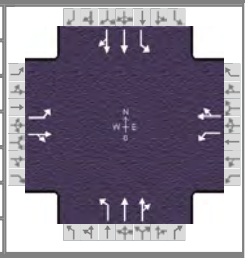
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	21.8	24.6	21.8	24.6	14.5	84.1	14.5	84.1
Yellow Change Interval (*Y*), s	3.5	4.5	3.5	4.5	3.5	4.5	3.5	4.5
Red Clearance Interval (R_c), s	0.0	1.5	0.0	4.5	0.0	1.5	0.0	1.5
Minimum Green (G_{min}), s	3	8	3	8	3	15	3	15
Start-Up Lost Time (*lt*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s	3.0	7.0	3.0	7.0	3.0	2.0	3.0	2.0
Recall Mode	Off	Off	Off	Off	Off	Min	Off	Min
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0	No	25	0	No	25	0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft	9.0	12	0	9.0	12	0	9.0	12	0	9.0	12	0
Street Width / Island / Curb	0	0	No	0	0	No	0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

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HCS7 Signalized Intersection Results Summary

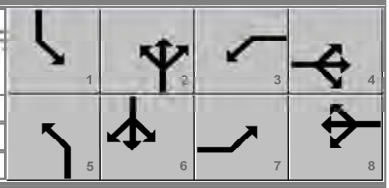
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	4:00 - 5:00 PM	PHF	0.97
Urban Street	Main Street	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Walkup Avenue/Commo…	File Name	PM No-Build.xus		
Project Description	PM No-Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	111	6	47	30	9	20	29	590	18	8	665	143

Signal Information			
Cycle, s	145.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	0.8	1.3	102.5	3.1	3.9	7.9						
Yellow	3.5	0.0	4.5	3.5	3.5	4.5						
Red	0.0	0.0	1.5	0.0	0.0	4.5						



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	4.0
Phase Duration, s	14.0	24.3	6.6	16.9	5.6	109.7	4.3	108.5
Change Period, (*Y+R c*), s	3.5	9.0	3.5	9.0	3.5	6.0	3.5	6.0
Max Allow Headway (*MAH*), s	4.2	9.7	4.2	9.7	4.0	0.0	4.0	0.0
Queue Clearance Time (*g s*), s	10.4	6.5	4.3	4.5	2.7		2.2	
Green Extension Time (*g e*), s	0.2	1.2	0.0	1.0	0.1	0.0	0.0	0.0
Phase Call Probability	0.99	1.00	0.71	0.99	0.70		0.28	
Max Out Probability	0.04	0.01	0.00	0.05	0.00		0.00	

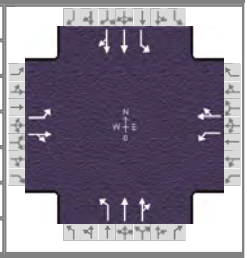
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	114	55		31	30		30	315	312	8	429	404
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1638		1810	1690		1810	1984	1963	1810	1984	1862
Queue Service Time (*g s*), s	8.4	4.5		2.3	2.5		0.7	1.3	1.8	0.2	2.5	6.1
Cycle Queue Clearance Time (*g c*), s	8.4	4.5		2.3	2.5		0.7	1.3	1.8	0.2	2.5	6.1
Green Ratio (*g/C*)	0.14	0.11		0.08	0.05		0.72	0.72	0.72	0.71	0.71	0.71
Capacity (*c*), veh/h	233	173		163	92		521	1420	1405	620	1403	1316
Volume-to-Capacity Ratio (*X*)	0.491	0.316		0.189	0.324		0.057	0.222	0.222	0.013	0.306	0.307
Back of Queue (*Q*), ft/ln (95 th percentile)	180	95.1		50	58.9		11.3	26.2	32.1	3.2	44.7	96.7
Back of Queue (*Q*), veh/ln (95 th percentile)	7.2	3.8		2.0	2.4		0.5	1.0	1.3	0.1	1.8	3.9
Queue Storage Ratio (*RQ*) (95 th percentile)	1.80	0.00		0.77	0.00		0.08	0.00	0.00	0.02	0.00	0.00
Uniform Delay (*d 1*), s/veh	57.2	60.0		63.0	66.0		5.9	1.0	1.3	6.0	1.3	3.5
Incremental Delay (*d 2*), s/veh	1.6	4.7		0.6	9.1		0.0	0.4	0.4	0.0	0.6	0.6
Initial Queue Delay (*d 3*), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	58.8	64.8		63.5	75.0		5.9	1.3	1.7	6.0	1.9	4.1
Level of Service (LOS)	E	E		E	E		A	A	A	A	A	A
Approach Delay, s/veh / LOS	60.7	E		69.2	E		1.7	A		3.0	A	
Intersection Delay, s/veh / LOS	10.5						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.32	B	2.32	B	1.87	B	1.87	B
Bicycle LOS Score / LOS	0.77	A	0.59	A	1.03	A	1.18	A

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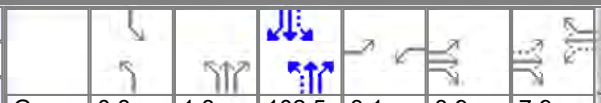
HCS7 Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	4:00 - 5:00 PM	PHF	0.97
Urban Street	Main Street	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Walkup Avenue/Commo…	File Name	PM No-Build.xus		
Project Description	PM No-Build				

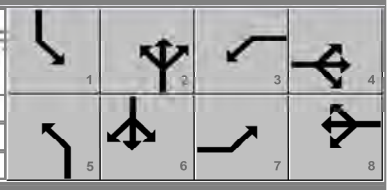


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	111	6	47	30	9	20	29	590	18	8	665	143

Signal Information			
Cycle, s	145.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	0.8	1.3	102.5	3.1	3.9	7.9
Yellow	3.5	0.0	4.5	3.5	3.5	4.5
Red	0.0	0.0	1.5	0.0	0.0	4.5



Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.992	1.000	1.000	0.992	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.952	0.000		0.952	0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.862	0.862		0.890	0.890		0.989	0.989		0.938	0.938
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Movement Saturation Flow Rate (s), veh/h	1810	185	1453	1810	525	1166	1810	3831	117	1810	3166	680
Proportion of Vehicles Arriving on Green (P)	0.07	0.11	0.11	0.02	0.05	0.05	0.01	0.95	0.72	0.01	0.94	0.71
Incremental Delay Factor (k)	0.11	0.50		0.11	0.50		0.11	0.50	0.50	0.11	0.50	0.50

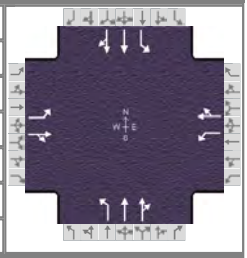
Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)	3.5	9.0	3.5	9.0	3.5	6.0	3.5	6.0
Green Ratio (g/C)	0.14	0.11	0.08	0.05	0.72	0.72	0.71	0.71
Permitted Saturation Flow Rate (s_p), veh/h/ln	1402	0	1371	0	669	0	811	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s	9.9	0.0	7.9	0.0	102.5	0.0	102.5	0.0
Permitted Service Time (g_u), s	5.5	0.0	7.9	0.0	96.4	0.0	100.0	0.0
Permitted Queue Service Time (g_{ps}), s	0.4		0.0		0.3		0.0	
Time to First Blockage (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln								
Protected Right Effective Green Time (g_R), s								

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.557	0.000	1.557	0.000	1.198	0.000	1.198	0.000
Pedestrian F_s / F_{delay}	0.000	0.161	0.000	0.167	0.000	0.071	0.000	0.073
Pedestrian M_{corner} / M_{cw}								
Bicycle c_b / d_b	252.37	55.36	109.29	64.79	1430.95	5.87	1413.68	6.23
Bicycle F_w / F_v	-3.64	0.28	-3.64	0.10	-3.64	0.54	-3.64	0.69

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HCS7 Signalized Intersection Results Graphical Summary

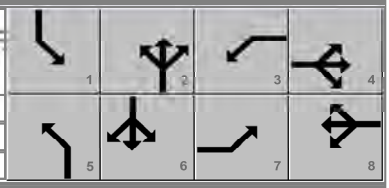
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	4:00 - 5:00 PM	PHF	0.97
Urban Street	Main Street	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Walkup Avenue/Commo…	File Name	PM No-Build.xus		
Project Description	PM No-Build				



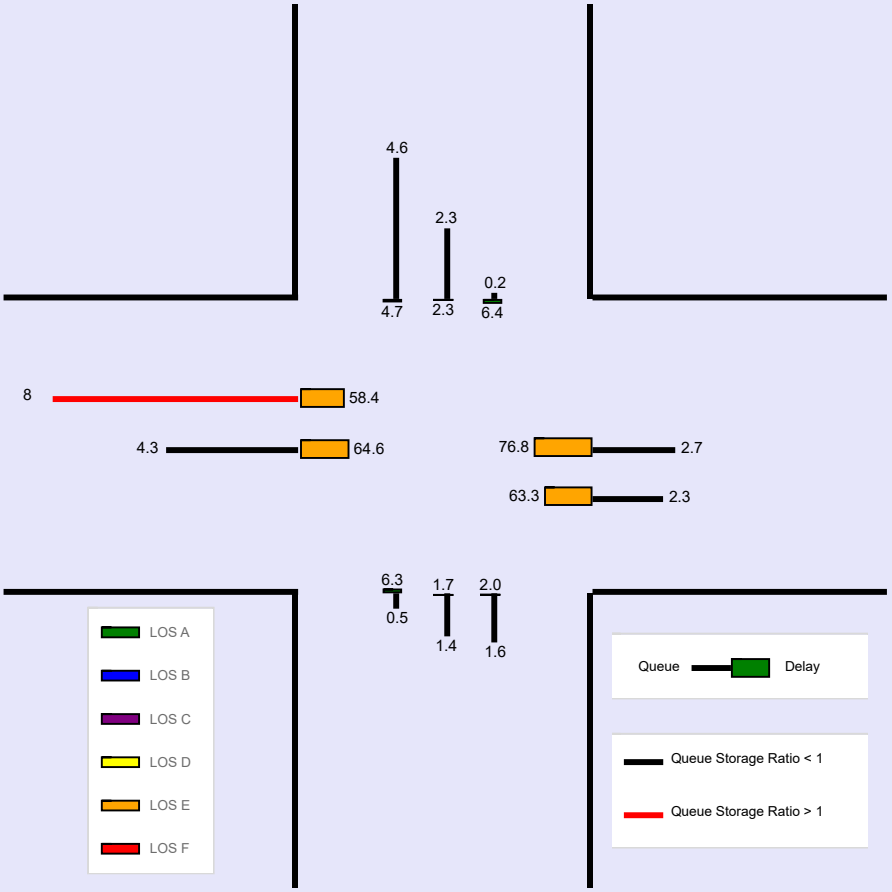
Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	111	6	47	30	9	20	29	590	18	8	665	143

Signal Information			
Cycle, s	145.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	0.8	1.3	102.5	3.1	3.9	7.9	
Yellow	3.5	0.0	4.5	3.5	3.5	4.5	
Red	0.0	0.0	1.5	0.0	0.0	4.5	



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)	180	95.1		50	58.9		11.3	26.2	32.1	3.2	44.7	96.7
Back of Queue (*Q*), veh/ln (95 th percentile)	7.2	3.8		2.0	2.4		0.5	1.0	1.3	0.1	1.8	3.9
Queue Storage Ratio (*RQ*) (95 th percentile)	1.80	0.00		0.77	0.00		0.08	0.00	0.00	0.02	0.00	0.00
Control Delay (*d*), s/veh	58.8	64.8		63.5	75.0		5.9	1.3	1.7	6.0	1.9	4.1
Level of Service (LOS)	E	E		E	E		A	A	A	A	A	A
Approach Delay, s/veh / LOS	60.7	E		69.2	E		1.7	A		3.0	A	
Intersection Delay, s/veh / LOS	10.5						B					



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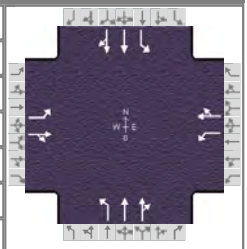
WARNING: Since queue spillover from turn lanes and spillback into upstream intersections is not accounted for in the HCM procedures, use of a simulation tool may be advised in situations where the Queue Storage Ratio exceeds 1.0.

--- Comments ---

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HCS7 Signalized Intersection Input Data

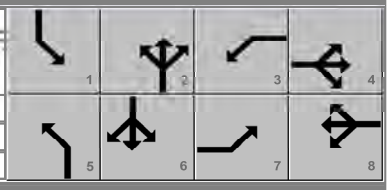
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	4:00 - 5:00 PM	PHF	0.97
Urban Street	Main Street	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Walkup Avenue/Commo…	File Name	PM Total.xus		
Project Description	PM Total				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	122	9	61	30	14	20	53	590	18	8	665	163

Signal Information			
Cycle, s	145.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	0.8	2.2	100.7	3.1	4.7	8.0
Yellow	3.5	0.0	4.5	3.5	3.5	4.5
Red	0.0	0.0	1.5	0.0	0.0	4.5



Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	122	9	61	30	14	20	53	590	18	8	665	163
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	1900	1900	1900	1900	1900	1900	2000	1900	1900	2000	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	0	0		0	0		0	1		0	1	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	3	3	3	3	3	3	4	3	3	4	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Turn Bay Length, ft	100	0		65	0		135	0		130	0	
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	25	25	25	25	25	25	35	35	35	35	35	35

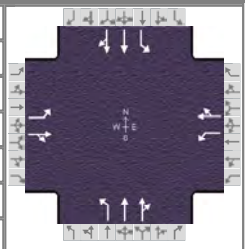
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	21.8	24.6	21.8	24.6	14.5	84.1	14.5	84.1
Yellow Change Interval (*Y*), s	3.5	4.5	3.5	4.5	3.5	4.5	3.5	4.5
Red Clearance Interval (R_c), s	0.0	1.5	0.0	4.5	0.0	1.5	0.0	1.5
Minimum Green (G_{min}), s	3	8	3	8	3	15	3	15
Start-Up Lost Time (*lt*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s	3.0	7.0	3.0	7.0	3.0	2.0	3.0	2.0
Recall Mode	Off	Off	Off	Off	Off	Min	Off	Min
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0	No	25	0	No	25	0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft	9.0	12	0	9.0	12	0	9.0	12	0	9.0	12	0
Street Width / Island / Curb	0	0	No	0	0	No	0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

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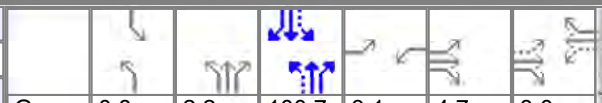
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	4:00 - 5:00 PM	PHF	0.97
Urban Street	Main Street	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Walkup Avenue/Commo…	File Name	PM Total.xus		
Project Description	PM Total				

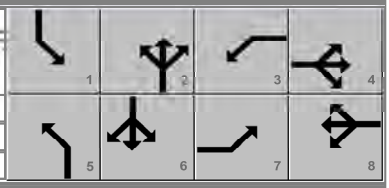


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	122	9	61	30	14	20	53	590	18	8	665	163

Signal Information			
Cycle, s	145.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	0.8	2.2	100.7	3.1	4.7	8.0
Yellow	3.5	0.0	4.5	3.5	3.5	4.5
Red	0.0	0.0	1.5	0.0	0.0	4.5



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	4.0
Phase Duration, s	14.9	25.2	6.6	17.0	6.5	108.8	4.3	106.7
Change Period, ($Y+R_c$), s	3.5	9.0	3.5	9.0	3.5	6.0	3.5	6.0
Max Allow Headway (*MAH*), s	4.2	9.6	4.2	9.6	4.0	0.0	4.0	0.0
Queue Clearance Time (g_s), s	11.2	7.9	4.3	4.9	3.3		2.2	
Green Extension Time (g_e), s	0.2	1.6	0.0	1.3	0.1	0.0	0.0	0.0
Phase Call Probability	0.99	1.00	0.71	1.00	0.89		0.28	
Max Out Probability	0.08	0.02	0.00	0.10	0.00		0.00	

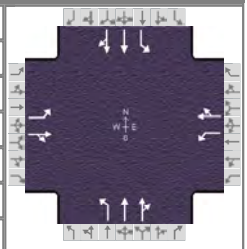
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	126	72		31	35		55	315	312	8	442	412
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1642		1810	1718		1810	1984	1963	1810	1984	1849
Queue Service Time (g_s), s	9.2	5.9		2.3	2.9		1.3	1.6	2.0	0.2	3.4	7.4
Cycle Queue Clearance Time (g_c), s	9.2	5.9		2.3	2.9		1.3	1.6	2.0	0.2	3.4	7.4
Green Ratio (*g/C*)	0.15	0.11		0.08	0.05		0.72	0.71	0.71	0.70	0.69	0.69
Capacity (*c*), veh/h	241	184		163	94		509	1407	1392	613	1378	1283
Volume-to-Capacity Ratio (*X*)	0.523	0.393		0.190	0.371		0.107	0.224	0.224	0.013	0.321	0.321
Back of Queue (*Q*), ft/ln (95 th percentile)	195.9	126.6		50	69.8		21.2	30.2	36.1	3.4	58	118
Back of Queue (*Q*), veh/ln (95 th percentile)	7.8	5.1		2.0	2.8		0.8	1.2	1.4	0.1	2.3	4.7
Queue Storage Ratio (*RQ*) (95 th percentile)	1.96	0.00		0.77	0.00		0.16	0.00	0.00	0.03	0.00	0.00
Uniform Delay (d_1), s/veh	56.8	59.8		62.9	66.1		6.1	1.2	1.5	6.6	1.8	4.4
Incremental Delay (d_2), s/veh	1.8	6.2		0.6	10.8		0.1	0.4	0.4	0.0	0.6	0.7
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	58.5	66.0		63.5	76.9		6.2	1.6	1.9	6.6	2.4	5.0
Level of Service (LOS)	E	E		E	E		A	A	A	A	A	A
Approach Delay, s/veh / LOS	61.3	E		70.6	E		2.1	A		3.7	A	
Intersection Delay, s/veh / LOS	11.8						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.32	B	2.32	B	1.87	B	1.87	B
Bicycle LOS Score / LOS	0.81	A	0.60	A	1.05	A	1.20	A

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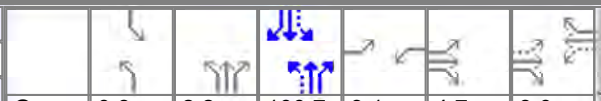
HCS7 Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	4:00 - 5:00 PM	PHF	0.97
Urban Street	Main Street	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Walkup Avenue/Commo…	File Name	PM Total.xus		
Project Description	PM Total				

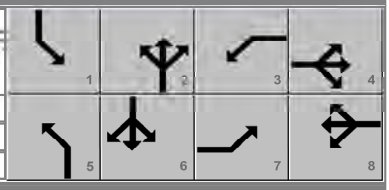


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	122	9	61	30	14	20	53	590	18	8	665	163

Signal Information			
Cycle, s	145.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	0.8	2.2	100.7	3.1	4.7	8.0
Yellow	3.5	0.0	4.5	3.5	3.5	4.5
Red	0.0	0.0	1.5	0.0	0.0	4.5



Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.992	1.000	1.000	0.992	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.952	0.000		0.952	0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.864	0.864		0.904	0.904		0.989	0.989		0.932	0.932
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Movement Saturation Flow Rate (s), veh/h	1810	211	1431	1810	707	1011	1810	3831	117	1810	3079	754
Proportion of Vehicles Arriving on Green (P)	0.08	0.11	0.11	0.02	0.05	0.05	0.02	0.95	0.71	0.01	0.93	0.69
Incremental Delay Factor (k)	0.11	0.50		0.11	0.50		0.11	0.50	0.50	0.11	0.50	0.50

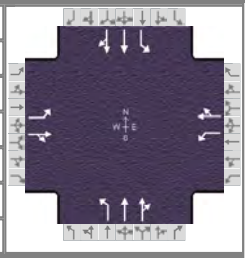
Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)	3.5	9.0	3.5	9.0	3.5	6.0	3.5	6.0
Green Ratio (g/C)	0.15	0.11	0.08	0.05	0.72	0.71	0.70	0.69
Permitted Saturation Flow Rate (s_p), veh/h/ln	1395	0	1349	0	657	0	811	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s	10.0	0.0	8.0	0.0	101.3	0.0	100.7	0.0
Permitted Service Time (g_u), s	5.1	0.0	8.0	0.0	93.2	0.0	98.8	0.0
Permitted Queue Service Time (g_{ps}), s	0.5		0.0		0.7		0.0	
Time to First Blockage (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln								
Protected Right Effective Green Time (g_R), s								

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.557	0.000	1.557	0.000	1.198	0.000	1.198	0.000
Pedestrian F_s / F_{delay}	0.000	0.160	0.000	0.167	0.000	0.073	0.000	0.077
Pedestrian M_{corner} / M_{cw}								
Bicycle c_b / d_b	265.02	54.56	109.93	64.75	1418.31	6.13	1388.52	6.78
Bicycle F_w / F_v	-3.64	0.33	-3.64	0.11	-3.64	0.56	-3.64	0.71

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HCS7 Signalized Intersection Results Graphical Summary

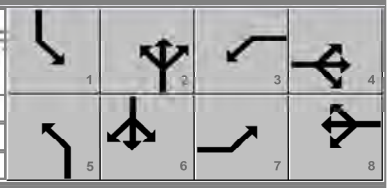
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	4:00 - 5:00 PM	PHF	0.97
Urban Street	Main Street	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Walkup Avenue/Commo…	File Name	PM Total.xus		
Project Description	PM Total				



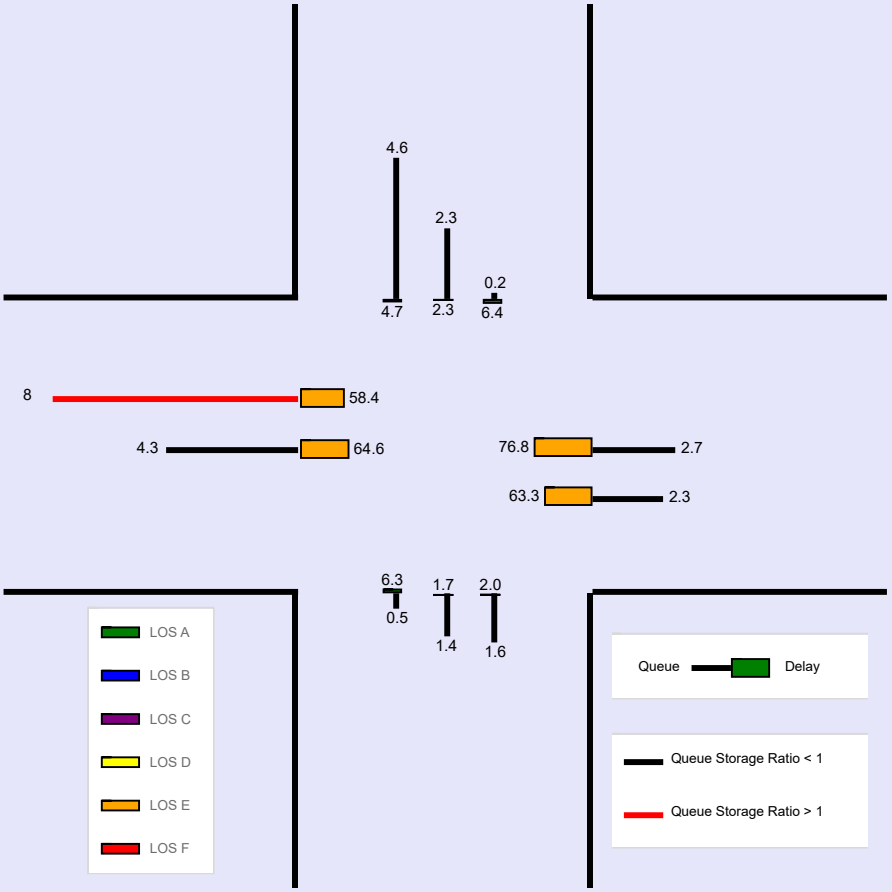
Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	122	9	61	30	14	20	53	590	18	8	665	163

Signal Information			
Cycle, s	145.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	0.8	2.2	100.7	3.1	4.7	8.0	
Yellow	3.5	0.0	4.5	3.5	3.5	4.5	
Red	0.0	0.0	1.5	0.0	0.0	4.5	



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)	195.9	126.6		50	69.8		21.2	30.2	36.1	3.4	58	118
Back of Queue (*Q*), veh/ln (95 th percentile)	7.8	5.1		2.0	2.8		0.8	1.2	1.4	0.1	2.3	4.7
Queue Storage Ratio (*RQ*) (95 th percentile)	1.96	0.00		0.77	0.00		0.16	0.00	0.00	0.03	0.00	0.00
Control Delay (*d*), s/veh	58.5	66.0		63.5	76.9		6.2	1.6	1.9	6.6	2.4	5.0
Level of Service (LOS)	E	E		E	E		A	A	A	A	A	A
Approach Delay, s/veh / LOS	61.3	E		70.6	E		2.1	A		3.7	A	
Intersection Delay, s/veh / LOS	11.8						B					



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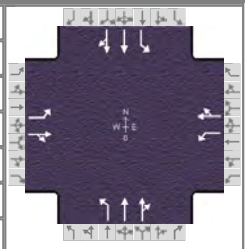
WARNING: Since queue spillover from turn lanes and spillback into upstream intersections is not accounted for in the HCM procedures, use of a simulation tool may be advised in situations where the Queue Storage Ratio exceeds 1.0.

--- Comments ---

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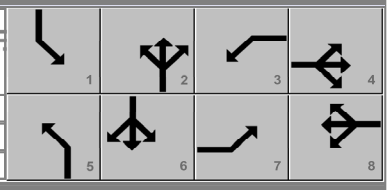
HCS7 Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	12:00 - 1:00 PM	PHF	0.95
Urban Street	Main Street	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Walkup Avenue/Commo…	File Name	SAT Existing.xus		
Project Description	SAT Existing				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	127	14	75	45	14	28	61	618	30	28	545	148

Signal Information												
Cycle, s	52.6	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	On	Green	1.1	1.0	16.5	1.6	3.0	7.5		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.5	0.0	4.5	3.5	0.0	4.5		
				Red	0.0	0.0	1.5	0.0	0.0	4.5		



Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	127	14	75	45	14	28	61	618	30	28	545	148
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	1900	1900	1900	1900	1900	1900	2000	1900	1900	2000	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	0	0		0	0		0	0		0	1	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	3	3	3	3	3	3	4	3	3	4	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Turn Bay Length, ft	100	0		65	0		135	0		130	0	
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	25	25	25	25	25	25	35	35	35	35	35	35

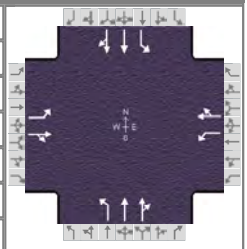
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	15.0	35.0	15.0	35.0	15.0	40.0	15.0	40.0
Yellow Change Interval (*Y*), s	3.5	4.5	3.5	4.5	3.5	4.5	3.5	4.5
Red Clearance Interval (R_c), s	0.0	1.5	0.0	4.5	0.0	1.5	0.0	1.5
Minimum Green (G_{min}), s	3	8	3	8	3	15	3	15
Start-Up Lost Time (*lt*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s	3.0	7.0	3.0	7.0	3.0	2.0	3.0	2.0
Recall Mode	Off	Off	Off	Off	Off	Min	Off	Min
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0	No	25	0	No	25	0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft	9.0	12	0	9.0	12	0	9.0	12	0	9.0	12	0
Street Width / Island / Curb	0	0	No	0	0	No	0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

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HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	12:00 - 1:00 PM	PHF	0.95
Urban Street	Main Street	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Walkup Avenue/Commo…	File Name	SAT Existing.xus		
Project Description	SAT Existing				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	127	14	75	45	14	28	61	618	30	28	545	148

Signal Information			
Cycle, s	52.6	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

								1	2	3	4	
Green	1.1	1.0	16.5	1.6	3.0	7.5						
Yellow	3.5	0.0	4.5	3.5	0.0	4.5						
Red	0.0	0.0	1.5	0.0	0.0	4.5						
							5	6	7	8		

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	4.0
Phase Duration, s	8.1	19.5	5.1	16.5	5.5	23.5	4.6	22.5
Change Period, ($Y+R_c$), s	3.5	9.0	3.5	9.0	3.5	6.0	3.5	6.0
Max Allow Headway (*MAH*), s	4.2	9.6	4.2	9.6	4.0	4.2	4.0	4.2
Queue Clearance Time (g_s), s	5.1	4.5	3.2	3.2	3.3	8.6	2.6	10.2
Green Extension Time (g_e), s	0.3	2.5	0.1	2.5	0.1	6.3	0.0	6.3
Phase Call Probability	0.86	0.98	0.50	0.93	0.61	1.00	0.35	1.00
Max Out Probability	0.01	0.01	0.00	0.00	0.00	0.04	0.00	0.05

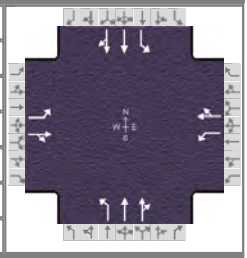
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	134	94		47	44		64	344	338	29	378	352
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1650		1810	1696		1810	2000	1967	1810	1984	1838
Queue Service Time (g_s), s	3.1	2.5		1.2	1.2		1.3	6.5	6.6	0.6	7.8	8.2
Cycle Queue Clearance Time (g_c), s	3.1	2.5		1.2	1.2		1.3	6.5	6.6	0.6	7.8	8.2
Green Ratio (*g/C*)	0.26	0.20		0.17	0.14		0.35	0.33	0.33	0.33	0.31	0.31
Capacity (*c*), veh/h	461	329		343	241		324	664	653	303	621	575
Volume-to-Capacity Ratio (*X*)	0.290	0.285		0.138	0.183		0.198	0.518	0.518	0.097	0.608	0.611
Back of Queue (*Q*), ft/ln (95 th percentile)	54.8	49.3		21.4	25.2		20.1	102.3	103	9.4	123.2	124.7
Back of Queue (*Q*), veh/ln (95 th percentile)	2.2	2.0		0.9	1.0		0.8	4.1	4.1	0.4	4.9	5.0
Queue Storage Ratio (*RQ*) (95 th percentile)	0.55	0.00		0.33	0.00		0.15	0.00	0.00	0.07	0.00	0.00
Uniform Delay (d_1), s/veh	15.7	17.9		18.5	19.9		12.1	11.6	11.9	12.5	12.8	13.9
Incremental Delay (d_2), s/veh	0.3	2.2		0.2	1.7		0.3	0.2	0.2	0.1	0.4	0.4
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	16.0	20.1		18.7	21.6		12.4	11.9	12.1	12.6	13.2	14.3
Level of Service (LOS)	B	C		B	C		B	B	B	B	B	B
Approach Delay, s/veh / LOS	17.7	B		20.1	C		12.0	B		13.7	B	
Intersection Delay, s/veh / LOS	13.8						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.26	B	2.28	B	1.90	B	1.90	B
Bicycle LOS Score / LOS	0.86	A	0.64	A	1.10	A	1.11	A

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HCS7 Signalized Intersection Intermediate Values

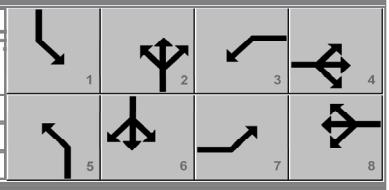
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	12:00 - 1:00 PM	PHF	0.95
Urban Street	Main Street	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Walkup Avenue/Commo…	File Name	SAT Existing.xus		
Project Description	SAT Existing				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	127	14	75	45	14	28	61	618	30	28	545	148

Signal Information			
Cycle, s	52.6	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	1.1	1.0	16.5	1.6	3.0	7.5						
Yellow	3.5	0.0	4.5	3.5	0.0	4.5						
Red	0.0	0.0	1.5	0.0	0.0	4.5						



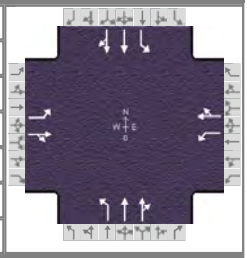
Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.992	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.952	0.000		0.952	0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.868	0.868		0.893	0.893		0.983	0.983		0.926	0.926
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Movement Saturation Flow Rate (s), veh/h	1810	260	1390	1810	565	1131	1810	3783	184	1810	3008	814
Proportion of Vehicles Arriving on Green (P)	0.09	0.20	0.20	0.03	0.14	0.14	0.04	0.44	0.33	0.02	0.42	0.31
Incremental Delay Factor (k)	0.11	0.50		0.11	0.50		0.11	0.04	0.04	0.11	0.04	0.04

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)	3.5	9.0	3.5	9.0	3.5	6.0	3.5	6.0
Green Ratio (g/C)	0.26	0.20	0.17	0.14	0.35	0.33	0.33	0.31
Permitted Saturation Flow Rate (s_p), veh/h/ln	1384	0	1323	0	737	0	771	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s	9.0	0.0	7.5	0.0	16.5	0.0	16.5	0.0
Permitted Service Time (g_u), s	6.3	0.0	6.0	0.0	8.3	0.0	8.9	0.0
Permitted Queue Service Time (g_{ps}), s	0.3		0.1		0.8		0.3	
Time to First Blockage (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln								
Protected Right Effective Green Time (g_R), s								

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.557	0.000	1.557	0.000	1.198	0.000	1.198	0.000
Pedestrian F_s / F_{delay}	0.000	0.107	0.000	0.119	0.000	0.099	0.000	0.101
Pedestrian M_{corner} / M_{cw}								
Bicycle c_b / d_b	512.25	14.55	284.08	19.36	663.62	11.74	625.90	12.41
Bicycle F_w / F_v	-3.64	0.38	-3.64	0.15	-3.64	0.62	-3.64	0.63

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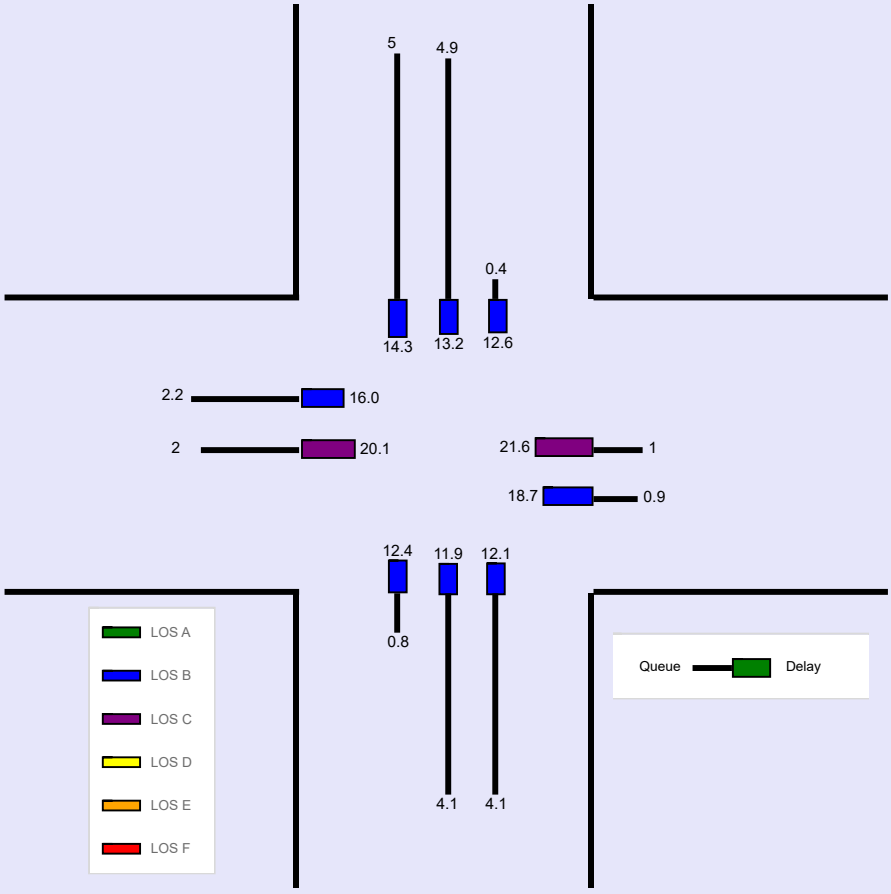
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	12:00 - 1:00 PM	PHF	0.95
Urban Street	Main Street	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Walkup Avenue/Commo…	File Name	SAT Existing.xus		
Project Description	SAT Existing				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	127	14	75	45	14	28	61	618	30	28	545	148

Signal Information													
Cycle, s	52.6	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	Yes	Simult. Gap E/W	On										
Force Mode	Fixed	Simult. Gap N/S	On										
				Green	1.1	1.0	16.5	1.6	3.0	7.5			
				Yellow	3.5	0.0	4.5	3.5	0.0	4.5			
				Red	0.0	0.0	1.5	0.0	0.0	4.5			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)	54.8	49.3		21.4	25.2		20.1	102.3	103	9.4	123.2	124.7
Back of Queue (*Q*), veh/ln (95 th percentile)	2.2	2.0		0.9	1.0		0.8	4.1	4.1	0.4	4.9	5.0
Queue Storage Ratio (*RQ*) (95 th percentile)	0.55	0.00		0.33	0.00		0.15	0.00	0.00	0.07	0.00	0.00
Control Delay (*d*), s/veh	16.0	20.1		18.7	21.6		12.4	11.9	12.1	12.6	13.2	14.3
Level of Service (LOS)	B	C		B	C		B	B	B	B	B	B
Approach Delay, s/veh / LOS	17.7	B		20.1	C		12.0	B		13.7	B	
Intersection Delay, s/veh / LOS	13.8						B					



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--- Messages ---

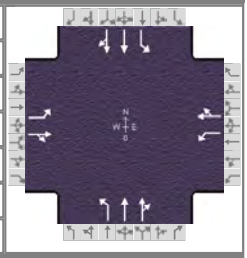
No errors or warnings exist.

--- Comments ---

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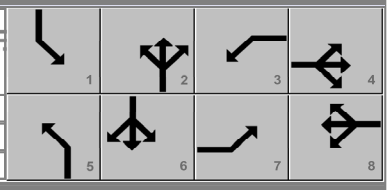
HCS7 Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	12:00 - 1:00 PM	PHF	0.95
Urban Street	Main Street	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Walkup Avenue/Commo…	File Name	SAT No-Build.xus		
Project Description	SAT No-Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	127	14	75	45	14	28	63	642	31	29	566	153

Signal Information												
Cycle, s	53.5	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	On	Green	1.1	1.0	17.2	1.7	3.0	7.5		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.5	0.0	4.5	3.5	0.0	4.5		
				Red	0.0	0.0	1.5	0.0	0.0	4.5		



Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	127	14	75	45	14	28	63	642	31	29	566	153
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	1900	1900	1900	1900	1900	1900	2000	1900	1900	2000	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	0	0		0	0		0	0		0	1	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	3	3	3	3	3	3	4	3	3	4	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Turn Bay Length, ft	100	0		65	0		135	0		130	0	
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	25	25	25	25	25	25	35	35	35	35	35	35

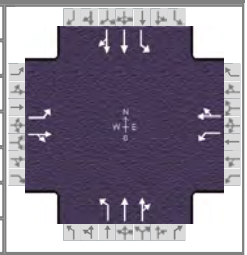
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	15.0	35.0	15.0	35.0	15.0	40.0	15.0	40.0
Yellow Change Interval (*Y*), s	3.5	4.5	3.5	4.5	3.5	4.5	3.5	4.5
Red Clearance Interval (R_c), s	0.0	1.5	0.0	4.5	0.0	1.5	0.0	1.5
Minimum Green (G_{min}), s	3	8	3	8	3	15	3	15
Start-Up Lost Time (*lt*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s	3.0	7.0	3.0	7.0	3.0	2.0	3.0	2.0
Recall Mode	Off	Off	Off	Off	Off	Min	Off	Min
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0	No	25	0	No	25	0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft	9.0	12	0	9.0	12	0	9.0	12	0	9.0	12	0
Street Width / Island / Curb	0	0	No	0	0	No	0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

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HCS7 Signalized Intersection Results Summary

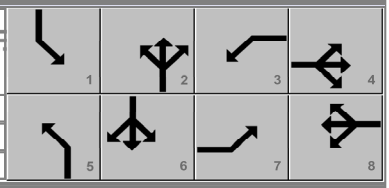
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	12:00 - 1:00 PM	PHF	0.95
Urban Street	Main Street	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Walkup Avenue/Commo…	File Name	SAT No-Build.xus		
Project Description	SAT No-Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	127	14	75	45	14	28	63	642	31	29	566	153

Signal Information			
Cycle, s	53.5	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	1.1	1.0	17.2	1.7	3.0	7.5
Yellow	3.5	0.0	4.5	3.5	0.0	4.5
Red	0.0	0.0	1.5	0.0	0.0	4.5



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	4.0
Phase Duration, s	8.2	19.5	5.2	16.5	5.6	24.2	4.6	23.2
Change Period, ($Y+R_c$), s	3.5	9.0	3.5	9.0	3.5	6.0	3.5	6.0
Max Allow Headway (*MAH*), s	4.2	9.6	4.2	9.6	4.0	4.2	4.0	4.2
Queue Clearance Time (g_s), s	5.2	4.6	3.2	3.2	3.3	8.9	2.6	10.6
Green Extension Time (g_e), s	0.3	2.5	0.1	2.5	0.1	6.6	0.0	6.6
Phase Call Probability	0.86	0.98	0.51	0.94	0.63	1.00	0.36	1.00
Max Out Probability	0.01	0.01	0.00	0.00	0.00	0.05	0.00	0.06

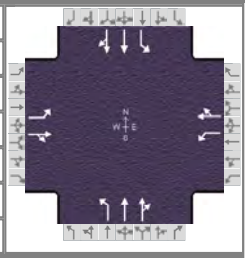
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	134	94		47	44		66	357	351	31	392	365
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1650		1810	1696		1810	2000	1967	1810	1984	1838
Queue Service Time (g_s), s	3.2	2.6		1.2	1.2		1.3	6.8	6.9	0.6	8.2	8.6
Cycle Queue Clearance Time (g_c), s	3.2	2.6		1.2	1.2		1.3	6.8	6.9	0.6	8.2	8.6
Green Ratio (*g/C*)	0.26	0.20		0.17	0.14		0.36	0.34	0.34	0.34	0.32	0.32
Capacity (*c*), veh/h	456	325		338	238		323	681	670	303	637	591
Volume-to-Capacity Ratio (*X*)	0.293	0.288		0.140	0.186		0.205	0.524	0.524	0.101	0.615	0.617
Back of Queue (*Q*), ft/ln (95 th percentile)	56.3	50.6		21.9	25.8		20.9	106.5	107.3	9.8	128.6	130.5
Back of Queue (*Q*), veh/ln (95 th percentile)	2.3	2.0		0.9	1.0		0.8	4.3	4.3	0.4	5.1	5.2
Queue Storage Ratio (*RQ*) (95 th percentile)	0.56	0.00		0.34	0.00		0.15	0.00	0.00	0.08	0.00	0.00
Uniform Delay (d_1), s/veh	16.0	18.3		18.9	20.3		12.1	11.5	11.7	12.4	12.7	13.9
Incremental Delay (d_2), s/veh	0.4	2.2		0.2	1.7		0.3	0.2	0.2	0.1	0.4	0.4
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	16.4	20.5		19.1	22.1		12.4	11.7	12.0	12.5	13.1	14.3
Level of Service (LOS)	B	C		B	C		B	B	B	B	B	B
Approach Delay, s/veh / LOS	18.1	B		20.5	C		11.9	B		13.6	B	
Intersection Delay, s/veh / LOS	13.8						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.27	B	2.28	B	1.90	B	1.90	B
Bicycle LOS Score / LOS	0.86	A	0.64	A	1.13	A	1.14	A

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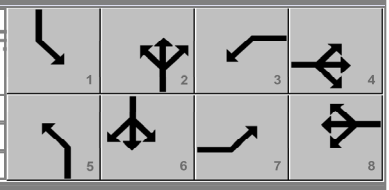
HCS7 Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	12:00 - 1:00 PM	PHF	0.95
Urban Street	Main Street	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Walkup Avenue/Commo…	File Name	SAT No-Build.xus		
Project Description	SAT No-Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	127	14	75	45	14	28	63	642	31	29	566	153

Signal Information												
Cycle, s	53.5	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	On	Green	1.1	1.0	17.2	1.7	3.0	7.5		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.5	0.0	4.5	3.5	0.0	4.5		
				Red	0.0	0.0	1.5	0.0	0.0	4.5		



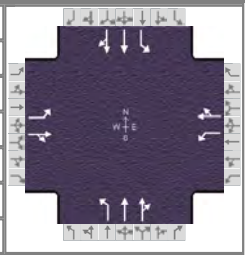
Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.992	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.952	0.000		0.952	0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.868	0.868		0.893	0.893		0.984	0.984		0.926	0.926
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Movement Saturation Flow Rate (s), veh/h	1810	260	1390	1810	565	1131	1810	3785	183	1810	3011	812
Proportion of Vehicles Arriving on Green (P)	0.09	0.20	0.20	0.03	0.14	0.14	0.04	0.45	0.34	0.02	0.43	0.32
Incremental Delay Factor (k)	0.11	0.50		0.11	0.50		0.11	0.04	0.04	0.11	0.04	0.04

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)	3.5	9.0	3.5	9.0	3.5	6.0	3.5	6.0
Green Ratio (g/C)	0.26	0.20	0.17	0.14	0.36	0.34	0.34	0.32
Permitted Saturation Flow Rate (s_p), veh/h/ln	1384	0	1323	0	719	0	752	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s	9.1	0.0	7.5	0.0	17.2	0.0	17.2	0.0
Permitted Service Time (g_u), s	6.3	0.0	6.0	0.0	8.6	0.0	9.4	0.0
Permitted Queue Service Time (g_{ps}), s	0.3		0.1		0.9		0.3	
Time to First Blockage (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln								
Protected Right Effective Green Time (g_R), s								

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.557	0.000	1.557	0.000	1.198	0.000	1.198	0.000
Pedestrian F_s / F_{delay}	0.000	0.108	0.000	0.120	0.000	0.098	0.000	0.101
Pedestrian M_{corner} / M_{cw}								
Bicycle c_b / d_b	506.08	14.93	280.10	19.79	681.16	11.64	642.28	12.33
Bicycle F_w / F_v	-3.64	0.38	-3.64	0.15	-3.64	0.64	-3.64	0.65

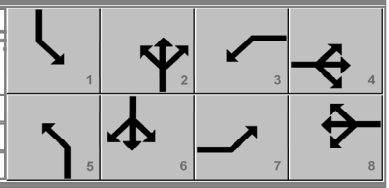
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General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	12:00 - 1:00 PM	PHF	0.95
Urban Street	Main Street	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Walkup Avenue/Commo…	File Name	SAT No-Build.xus		
Project Description	SAT No-Build				

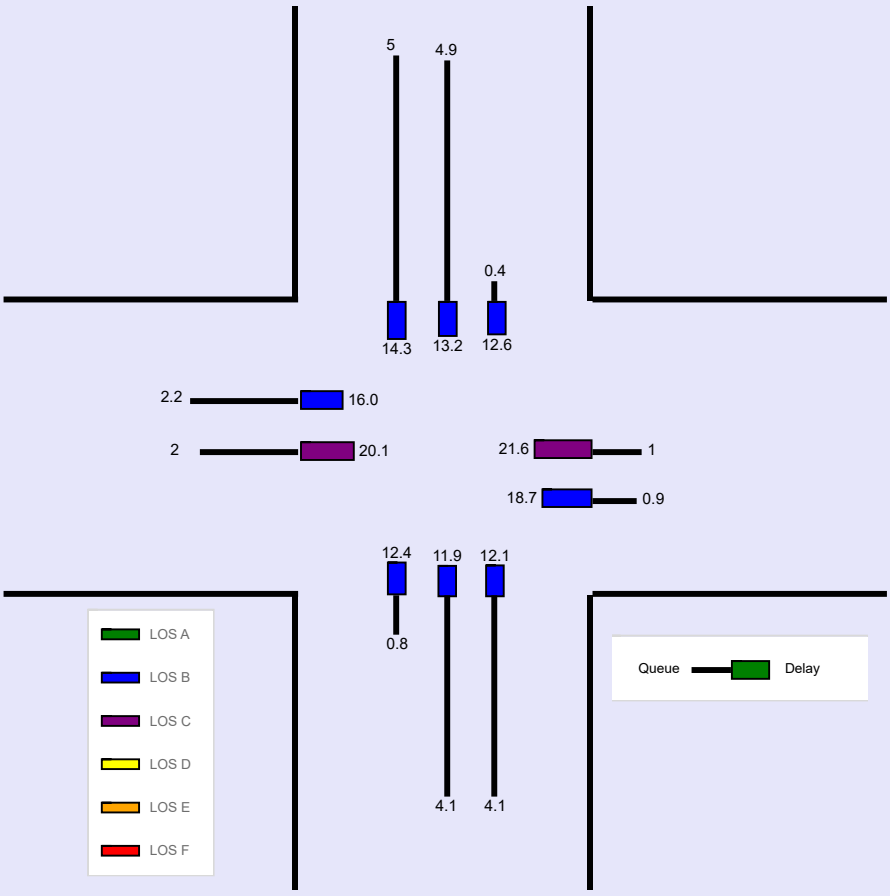


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	127	14	75	45	14	28	63	642	31	29	566	153

Signal Information												
Cycle, s	53.5	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
				Green	1.1	1.0	17.2	1.7	3.0	7.5		
				Yellow	3.5	0.0	4.5	3.5	0.0	4.5		
				Red	0.0	0.0	1.5	0.0	0.0	4.5		



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)	56.3	50.6		21.9	25.8		20.9	106.5	107.3	9.8	128.6	130.5
Back of Queue (*Q*), veh/ln (95 th percentile)	2.3	2.0		0.9	1.0		0.8	4.3	4.3	0.4	5.1	5.2
Queue Storage Ratio (*RQ*) (95 th percentile)	0.56	0.00		0.34	0.00		0.15	0.00	0.00	0.08	0.00	0.00
Control Delay (*d*), s/veh	16.4	20.5		19.1	22.1		12.4	11.7	12.0	12.5	13.1	14.3
Level of Service (LOS)	B	C		B	C		B	B	B	B	B	B
Approach Delay, s/veh / LOS	18.1	B		20.5	C		11.9	B		13.6	B	
Intersection Delay, s/veh / LOS	13.8						B					



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--- Messages ---

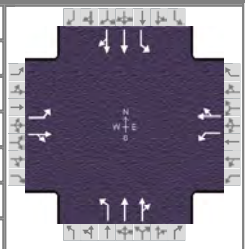
No errors or warnings exist.

--- Comments ---

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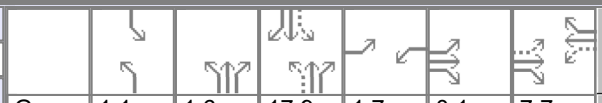
HCS7 Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	12:00 - 1:00 PM	PHF	0.95
Urban Street	Main Street	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Walkup Avenue/Commo…	File Name	SAT Total.xus		
Project Description	SAT Total				

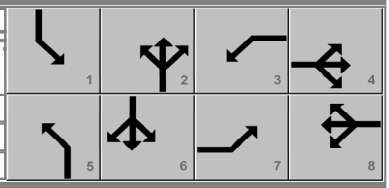


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	140	17	91	45	17	28	79	642	31	29	566	166

Signal Information			
Cycle, s	55.6	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	1.1	1.6	17.9	1.7	0.1	7.7						
Yellow	3.5	0.0	4.5	3.5	3.5	4.5						
Red	0.0	0.0	1.5	0.0	0.0	4.5						



Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	140	17	91	45	17	28	79	642	31	29	566	166
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	1900	1900	1900	1900	1900	1900	2000	1900	1900	2000	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	0	0		0	0		0	0		0	1	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	3	3	3	3	3	3	4	3	3	4	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Turn Bay Length, ft	100	0		65	0		135	0		130	0	
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	25	25	25	25	25	25	35	35	35	35	35	35

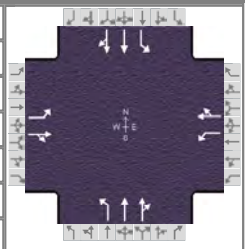
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	15.0	35.0	15.0	35.0	15.0	40.0	15.0	40.0
Yellow Change Interval (*Y*), s	3.5	4.5	3.5	4.5	3.5	4.5	3.5	4.5
Red Clearance Interval (R_c), s	0.0	1.5	0.0	4.5	0.0	1.5	0.0	1.5
Minimum Green (G_{min}), s	3	8	3	8	3	15	3	15
Start-Up Lost Time (*lt*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s	3.0	7.0	3.0	7.0	3.0	2.0	3.0	2.0
Recall Mode	Off	Off	Off	Off	Off	Min	Off	Min
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0	No	25	0	No	25	0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft	9.0	12	0	9.0	12	0	9.0	12	0	9.0	12	0
Street Width / Island / Curb	0	0	No	0	0	No	0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

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HCS7 Signalized Intersection Results Summary

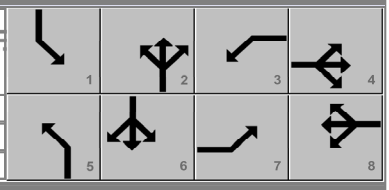
General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	12:00 - 1:00 PM	PHF	0.95
Urban Street	Main Street	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Walkup Avenue/Commo…	File Name	SAT Total.xus		
Project Description	SAT Total				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	140	17	91	45	17	28	79	642	31	29	566	166

Signal Information			
Cycle, s	55.6	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	1.1	1.6	17.9	1.7	0.1	7.7						
Yellow	3.5	0.0	4.5	3.5	3.5	4.5						
Red	0.0	0.0	1.5	0.0	0.0	4.5						



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	4.0
Phase Duration, s	8.8	20.3	5.2	16.7	6.3	25.5	4.6	23.9
Change Period, ($Y+R_c$), s	3.5	9.0	3.5	9.0	3.5	6.0	3.5	6.0
Max Allow Headway (*MAH*), s	4.2	9.6	4.2	9.6	4.0	4.2	4.0	4.2
Queue Clearance Time (g_s), s	5.6	5.3	3.2	3.4	3.7	9.0	2.6	11.2
Green Extension Time (g_e), s	0.3	2.9	0.1	3.0	0.1	6.7	0.0	6.6
Phase Call Probability	0.90	0.99	0.52	0.96	0.72	1.00	0.38	1.00
Max Out Probability	0.02	0.01	0.00	0.01	0.00	0.05	0.00	0.06

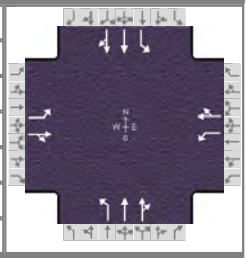
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	147	114		47	47		83	357	351	31	400	370
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1650		1810	1709		1810	2000	1967	1810	1984	1829
Queue Service Time (g_s), s	3.6	3.3		1.2	1.4		1.7	6.9	7.0	0.6	8.8	9.2
Cycle Queue Clearance Time (g_c), s	3.6	3.3		1.2	1.4		1.7	6.9	7.0	0.6	8.8	9.2
Green Ratio (*g/C*)	0.27	0.20		0.17	0.14		0.37	0.35	0.35	0.34	0.32	0.32
Capacity (*c*), veh/h	459	334		326	236		331	701	690	308	638	588
Volume-to-Capacity Ratio (*X*)	0.321	0.340		0.145	0.201		0.252	0.509	0.509	0.099	0.628	0.630
Back of Queue (*Q*), ft/ln (95 th percentile)	64.4	64.5		23	28.9		27.2	108.7	109.6	10.4	139	141.4
Back of Queue (*Q*), veh/ln (95 th percentile)	2.6	2.6		0.9	1.2		1.1	4.3	4.4	0.4	5.5	5.7
Queue Storage Ratio (*RQ*) (95 th percentile)	0.64	0.00		0.35	0.00		0.20	0.00	0.00	0.08	0.00	0.00
Uniform Delay (d_1), s/veh	16.3	19.0		19.7	21.3		12.3	11.5	11.7	12.8	13.3	14.6
Incremental Delay (d_2), s/veh	0.4	2.8		0.2	1.9		0.4	0.2	0.2	0.1	0.4	0.4
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	16.7	21.8		20.0	23.2		12.7	11.7	11.9	12.9	13.7	15.0
Level of Service (LOS)	B	C		B	C		B	B	B	B	B	B
Approach Delay, s/veh / LOS	18.9	B		21.6	C		11.9	B		14.3	B	
Intersection Delay, s/veh / LOS	14.3						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.27	B	2.28	B	1.90	B	1.90	B
Bicycle LOS Score / LOS	0.92	A	0.64	A	1.14	A	1.15	A

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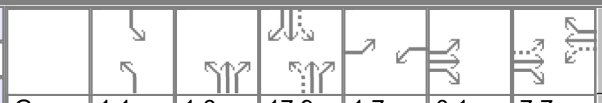
HCS7 Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	12:00 - 1:00 PM	PHF	0.95
Urban Street	Main Street	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Walkup Avenue/Commo…	File Name	SAT Total.xus		
Project Description	SAT Total				

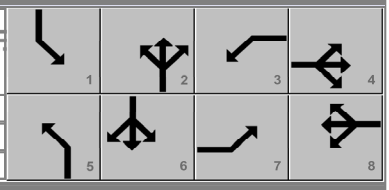


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	140	17	91	45	17	28	79	642	31	29	566	166

Signal Information			
Cycle, s	55.6	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	1.1	1.6	17.9	1.7	0.1	7.7
Yellow	3.5	0.0	4.5	3.5	3.5	4.5
Red	0.0	0.0	1.5	0.0	0.0	4.5



Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.992	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.952	0.000		0.952	0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.868	0.868		0.899	0.899		0.984	0.984		0.922	0.922
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Movement Saturation Flow Rate (s), veh/h	1810	260	1390	1810	645	1063	1810	3785	183	1810	2950	863
Proportion of Vehicles Arriving on Green (P)	0.10	0.20	0.20	0.03	0.14	0.14	0.05	0.47	0.35	0.02	0.43	0.32
Incremental Delay Factor (k)	0.11	0.50		0.11	0.50		0.11	0.04	0.04	0.11	0.04	0.04

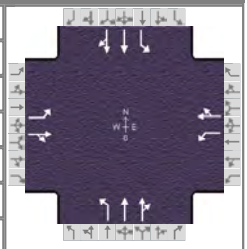
Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)	3.5	9.0	3.5	9.0	3.5	6.0	3.5	6.0
Green Ratio (g/C)	0.27	0.20	0.17	0.14	0.37	0.35	0.34	0.32
Permitted Saturation Flow Rate (s_p), veh/h/ln	1380	0	1299	0	710	0	752	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s	9.7	0.0	7.7	0.0	18.0	0.0	17.9	0.0
Permitted Service Time (g_u), s	6.3	0.0	6.0	0.0	8.7	0.0	10.5	0.0
Permitted Queue Service Time (g_{ps}), s	0.4		0.1		1.2		0.3	
Time to First Blockage (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln								
Protected Right Effective Green Time (g_R), s								

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.557	0.000	1.557	0.000	1.198	0.000	1.198	0.000
Pedestrian F_s / F_{delay}	0.000	0.110	0.000	0.121	0.000	0.099	0.000	0.102
Pedestrian M_{corner} / M_{cw}								
Bicycle c_b / d_b	512.92	15.37	276.35	20.65	701.15	11.73	642.35	12.81
Bicycle F_w / F_v	-3.64	0.43	-3.64	0.16	-3.64	0.65	-3.64	0.66

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HCS7 Signalized Intersection Results Graphical Summary

General Information				Intersection Information	
Agency	GHA			Duration, h	0.250
Analyst	David W	Analysis Date	2/27/2024	Area Type	Other
Jurisdiction	IDOT	Time Period	12:00 - 1:00 PM	PHF	0.95
Urban Street	Main Street	Analysis Year	2029	Analysis Period	1> 7:00
Intersection	Walkup Avenue/Commo…	File Name	SAT Total.xus		
Project Description	SAT Total				

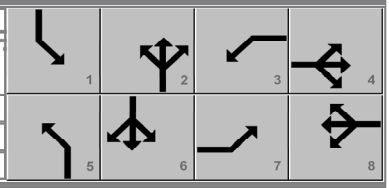


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	140	17	91	45	17	28	79	642	31	29	566	166

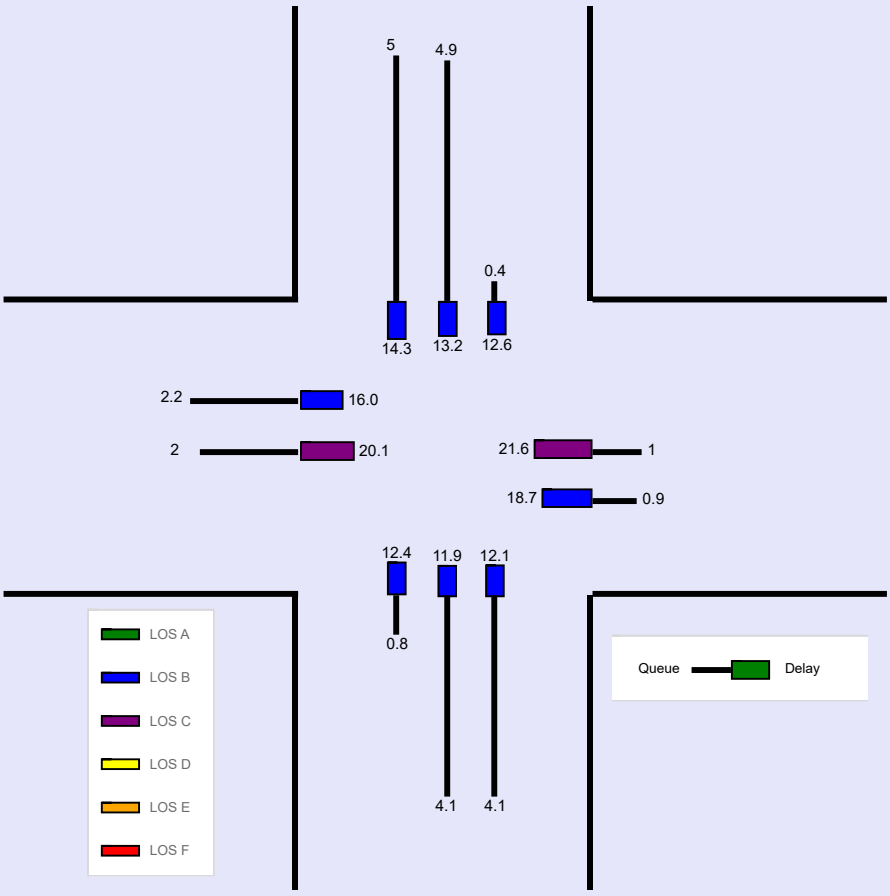
Signal Information			
Cycle, s	55.6	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	1.1	1.6	17.9	1.7	0.1	7.7						
Yellow	3.5	0.0	4.5	3.5	3.5	4.5						
Red	0.0	0.0	1.5	0.0	0.0	4.5						



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)	64.4	64.5		23	28.9		27.2	108.7	109.6	10.4	139	141.4
Back of Queue (*Q*), veh/ln (95 th percentile)	2.6	2.6		0.9	1.2		1.1	4.3	4.4	0.4	5.5	5.7
Queue Storage Ratio (*RQ*) (95 th percentile)	0.64	0.00		0.35	0.00		0.20	0.00	0.00	0.08	0.00	0.00
Control Delay (*d*), s/veh	16.7	21.8		20.0	23.2		12.7	11.7	11.9	12.9	13.7	15.0
Level of Service (LOS)	B	C		B	C		B	B	B	B	B	B
Approach Delay, s/veh / LOS	18.9	B		21.6	C		11.9	B		14.3	B	
Intersection Delay, s/veh / LOS	14.3						B					



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--- Messages ---

No errors or warnings exist.

--- Comments ---

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HCS7 All-Way Stop Control Report

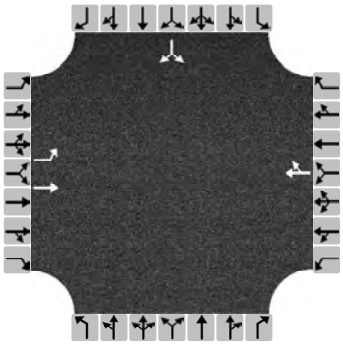
General Information

Analyst	David W
Agency/Co.	GHA
Date Performed	2/28/2024
Analysis Year	2024
Analysis Time Period (hrs)	0.25
Time Analyzed	7:15 - 8:15 AM
Project Description	AM Existing

Site Information

Intersection	Teckler Blvd @ Pathway Ct
Jurisdiction	Crystal Lake
East/West Street	Teckler Blvd
North/South Street	Pathway Ct
Peak Hour Factor	0.36

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	96	1			0	1				0		1
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	L	T		TR						LR		
Flow Rate, v (veh/h)	267	3		3						3		
Percent Heavy Vehicles	0	0		0						0		

Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20	3.20		3.20						3.20		
Initial Degree of Utilization, x	0.237	0.002		0.002						0.002		
Final Departure Headway, hd (s)	5.01	4.51		3.70						4.00		
Final Degree of Utilization, x	0.371	0.003		0.003						0.003		
Move-Up Time, m (s)	2.3	2.3		2.0						2.0		
Service Time, ts (s)	2.71	2.21		1.70						2.00		

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	267	3		3						3		
Capacity	719	799		972						900		
95% Queue Length, Q_{95} (veh)	1.7	0.0		0.0						0.0		
Control Delay (s/veh)	10.6	7.2		6.7						7.0		
Level of Service, LOS	B	A		A						A		
Approach Delay (s/veh)	10.6			6.7						7.0		
Approach LOS	B			A						A		
Intersection Delay, s/veh | LOS	10.5						B					

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HCS7 All-Way Stop Control Report

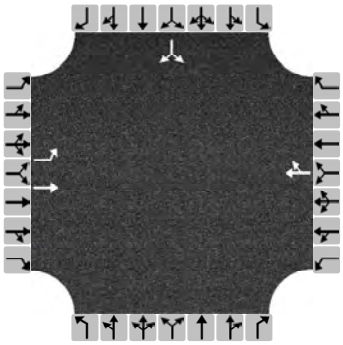
General Information

Analyst	David W
Agency/Co.	GHA
Date Performed	2/28/2024
Analysis Year	2029
Analysis Time Period (hrs)	0.25
Time Analyzed	7:15 - 8:15 AM
Project Description	AM No-Build

Site Information

Intersection	Teckler Blvd @ Pathway Ct
Jurisdiction	Crystal Lake
East/West Street	Teckler Blvd
North/South Street	Pathway Ct
Peak Hour Factor	0.36

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	98	1			0	1				0		1
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	L	T		TR						LR		
Flow Rate, v (veh/h)	272	3		3						3		
Percent Heavy Vehicles	0	0		0						0		

Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20	3.20		3.20						3.20		
Initial Degree of Utilization, x	0.242	0.002		0.002						0.002		
Final Departure Headway, hd (s)	5.01	4.51		3.71						4.01		
Final Degree of Utilization, x	0.379	0.003		0.003						0.003		
Move-Up Time, m (s)	2.3	2.3		2.0						2.0		
Service Time, ts (s)	2.71	2.21		1.71						2.01		

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	272	3		3						3		
Capacity	719	799		971						897		
95% Queue Length, Q_{95} (veh)	1.8	0.0		0.0						0.0		
Control Delay (s/veh)	10.7	7.2		6.7						7.0		
Level of Service, LOS	B	A		A						A		
Approach Delay (s/veh)	10.7			6.7						7.0		
Approach LOS	B			A						A		
Intersection Delay, s/veh | LOS	10.6						B					

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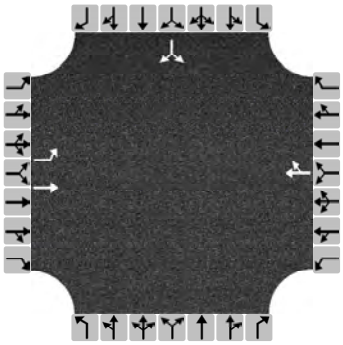
General Information

Analyst	David W
Agency/Co.	GHA
Date Performed	2/28/2024
Analysis Year	2029
Analysis Time Period (hrs)	0.25
Time Analyzed	7:15 - 8:15 AM
Project Description	AM No-Build

Site Information

Intersection	Teckler Blvd @ Pathway Ct
Jurisdiction	Crystal Lake
East/West Street	Teckler Blvd
North/South Street	Pathway Ct
Peak Hour Factor	0.36

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	102	6			16	1				0		16
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	L	T		TR						LR		
Flow Rate, v (veh/h)	283	17		47						44		
Percent Heavy Vehicles	0	0		0						0		

Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20	3.20		3.20						3.20		
Initial Degree of Utilization, x	0.252	0.015		0.042						0.040		
Final Departure Headway, hd (s)	5.13	4.63		4.41						4.17		
Final Degree of Utilization, x	0.404	0.021		0.058						0.051		
Move-Up Time, m (s)	2.3	2.3		2.0						2.0		
Service Time, ts (s)	2.83	2.33		2.41						2.17		

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	283	17		47						44		
Capacity	701	777		817						864		
95% Queue Length, Q_{95} (veh)	2.0	0.1		0.2						0.2		
Control Delay (s/veh)	11.3	7.4		7.7						7.4		
Level of Service, LOS	B	A		A						A		
Approach Delay (s/veh)	11.1			7.7						7.4		
Approach LOS	B			A						A		
Intersection Delay, s/veh | LOS	10.2						B					

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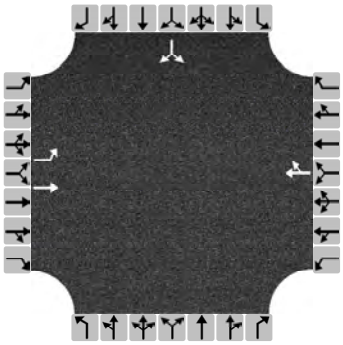
General Information

Analyst	David W
Agency/Co.	GHA
Date Performed	2/28/2024
Analysis Year	2024
Analysis Time Period (hrs)	0.25
Time Analyzed	3:45 - 4:45 PM
Project Description	PM Existing

Site Information

Intersection	Teckler Blvd @ Pathway Ct
Jurisdiction	Crystal Lake
East/West Street	Teckler Blvd
North/South Street	Pathway Ct
Peak Hour Factor	0.75

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	8	2			0	2				0		0
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	L	T		TR						LR		
Flow Rate, v (veh/h)	11	3		3						0		
Percent Heavy Vehicles	0	0		0						0		

Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20	3.20		3.20						3.20		
Initial Degree of Utilization, x	0.009	0.002		0.002						0.000		
Final Departure Headway, hd (s)	5.00	4.50		3.41						3.94		
Final Degree of Utilization, x	0.015	0.003		0.003						0.000		
Move-Up Time, m (s)	2.3	2.3		2.0						2.0		
Service Time, ts (s)	2.70	2.20		1.41						1.94		

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	11	3		3						0		
Capacity	720	800		1054						1078		
95% Queue Length, Q_{95} (veh)	0.0	0.0		0.0						0.0		
Control Delay (s/veh)	7.8	7.2		6.4						6.9		
Level of Service, LOS	A	A		A						A		
Approach Delay (s/veh)	7.7			6.4						0.0		
Approach LOS	A			A						A		
Intersection Delay, s/veh | LOS	7.5						A					

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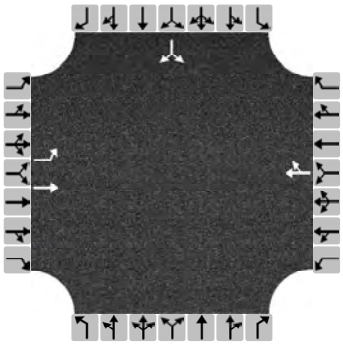
General Information

Analyst	David W
Agency/Co.	GHA
Date Performed	2/28/2024
Analysis Year	2029
Analysis Time Period (hrs)	0.25
Time Analyzed	3:45 - 4:45 PM
Project Description	PM No-Build

Site Information

Intersection	Teckler Blvd @ Pathway Ct
Jurisdiction	Crystal Lake
East/West Street	Teckler Blvd
North/South Street	Pathway Ct
Peak Hour Factor	0.75

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	8	2			0	2				0		0
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	L	T		TR						LR		
Flow Rate, v (veh/h)	11	3		3						0		
Percent Heavy Vehicles	0	0		0						0		

Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20	3.20		3.20						3.20		
Initial Degree of Utilization, x	0.009	0.002		0.002						0.000		
Final Departure Headway, hd (s)	5.00	4.50		3.41						3.94		
Final Degree of Utilization, x	0.015	0.003		0.003						0.000		
Move-Up Time, m (s)	2.3	2.3		2.0						2.0		
Service Time, ts (s)	2.70	2.20		1.41						1.94		

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	11	3		3						0		
Capacity	720	800		1054						1078		
95% Queue Length, Q_{95} (veh)	0.0	0.0		0.0						0.0		
Control Delay (s/veh)	7.8	7.2		6.4						6.9		
Level of Service, LOS	A	A		A						A		
Approach Delay (s/veh)	7.7			6.4						0.0		
Approach LOS	A			A						A		
Intersection Delay, s/veh | LOS	7.5						A					

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HCS7 All-Way Stop Control Report

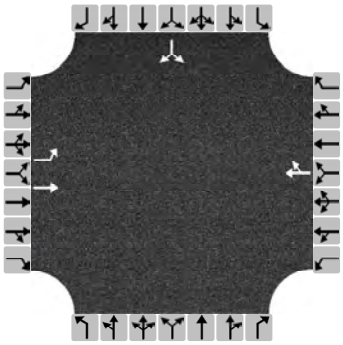
General Information

Analyst	David W
Agency/Co.	GHA
Date Performed	2/28/2024
Analysis Year	2029
Analysis Time Period (hrs)	0.25
Time Analyzed	3:45 - 4:45 PM
Project Description	PM Total

Site Information

Intersection	Teckler Blvd @ Pathway Ct
Jurisdiction	Crystal Lake
East/West Street	Teckler Blvd
North/South Street	Pathway Ct
Peak Hour Factor	0.75

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	24	18			10	2				0		9
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	L	T		TR						LR		
Flow Rate, v (veh/h)	32	24		16						12		
Percent Heavy Vehicles	0	0		0						0		

Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20	3.20		3.20						3.20		
Initial Degree of Utilization, x	0.028	0.021		0.014						0.011		
Final Departure Headway, hd (s)	5.03	4.53		3.98						3.47		
Final Degree of Utilization, x	0.045	0.030		0.018						0.012		
Move-Up Time, m (s)	2.3	2.3		2.0						2.0		
Service Time, ts (s)	2.73	2.23		1.98						1.47		

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	32	24		16						12		
Capacity	715	794		904						1038		
95% Queue Length, Q_{95} (veh)	0.1	0.1		0.1						0.0		
Control Delay (s/veh)	8.0	7.4		7.1						6.5		
Level of Service, LOS	A	A		A						A		
Approach Delay (s/veh)	7.7			7.1						6.5		
Approach LOS	A			A						A		
Intersection Delay, s/veh | LOS	7.4						A					

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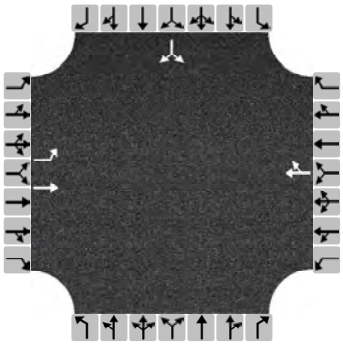
General Information

Analyst	David W
Agency/Co.	GHA
Date Performed	2/28/2024
Analysis Year	2024
Analysis Time Period (hrs)	0.25
Time Analyzed	12:00 - 1:00 PM
Project Description	SAT Existing

Site Information

Intersection	Teckler Blvd @ Pathway Ct
Jurisdiction	Crystal Lake
East/West Street	Teckler Blvd
North/South Street	Pathway Ct
Peak Hour Factor	0.75

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	13	3			2	1				0		2
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	L	T		TR						LR		
Flow Rate, v (veh/h)	17	4		4						3		
Percent Heavy Vehicles	0	0		0						0		

Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20	3.20		3.20						3.20		
Initial Degree of Utilization, x	0.015	0.004		0.004						0.002		
Final Departure Headway, hd (s)	5.01	4.51		3.83						3.36		
Final Degree of Utilization, x	0.024	0.005		0.004						0.002		
Move-Up Time, m (s)	2.3	2.3		2.0						2.0		
Service Time, ts (s)	2.71	2.21		1.83						1.36		

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	17	4		4						3		
Capacity	719	799		940						1071		
95% Queue Length, Q_{95} (veh)	0.1	0.0		0.0						0.0		
Control Delay (s/veh)	7.8	7.2		6.8						6.4		
Level of Service, LOS	A	A		A						A		
Approach Delay (s/veh)	7.7			6.8						6.4		
Approach LOS	A			A						A		
Intersection Delay, s/veh | LOS	7.5						A					

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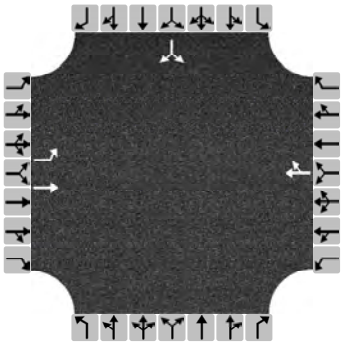
General Information

Analyst	David W
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Date Performed	2/28/2024
Analysis Year	2029
Analysis Time Period (hrs)	0.25
Time Analyzed	12:00 - 1:00 PM
Project Description	SAT No-Build

Site Information

Intersection	Teckler Blvd @ Pathway Ct
Jurisdiction	Crystal Lake
East/West Street	Teckler Blvd
North/South Street	Pathway Ct
Peak Hour Factor	0.75

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	13	3			2	1				0		2
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	L	T		TR						LR		
Flow Rate, v (veh/h)	17	4		4						3		
Percent Heavy Vehicles	0	0		0						0		

Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20	3.20		3.20						3.20		
Initial Degree of Utilization, x	0.015	0.004		0.004						0.002		
Final Departure Headway, hd (s)	5.01	4.51		3.83						3.36		
Final Degree of Utilization, x	0.024	0.005		0.004						0.002		
Move-Up Time, m (s)	2.3	2.3		2.0						2.0		
Service Time, ts (s)	2.71	2.21		1.83						1.36		

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	17	4		4						3		
Capacity	719	799		940						1071		
95% Queue Length, Q_{95} (veh)	0.1	0.0		0.0						0.0		
Control Delay (s/veh)	7.8	7.2		6.8						6.4		
Level of Service, LOS	A	A		A						A		
Approach Delay (s/veh)	7.7			6.8						6.4		
Approach LOS	A			A						A		
Intersection Delay, s/veh | LOS	7.5						A					

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HCS7 All-Way Stop Control Report

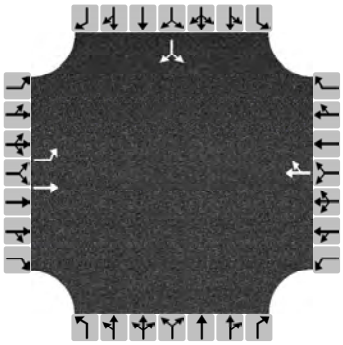
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Project Description	SAT Total

Site Information

Intersection	Teckler Blvd @ Pathway Ct
Jurisdiction	Crystal Lake
East/West Street	Teckler Blvd
North/South Street	Pathway Ct
Peak Hour Factor	0.75

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	23	14			13	1				0		12
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	L	T		TR						LR		
Flow Rate, v (veh/h)	31	19		19						16		
Percent Heavy Vehicles	0	0		0						0		

Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20	3.20		3.20						3.20		
Initial Degree of Utilization, x	0.027	0.017		0.017						0.014		
Final Departure Headway, hd (s)	5.04	4.54		4.04						3.46		
Final Degree of Utilization, x	0.043	0.024		0.021						0.015		
Move-Up Time, m (s)	2.3	2.3		2.0						2.0		
Service Time, ts (s)	2.74	2.24		2.04						1.46		

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	31	19		19						16		
Capacity	714	793		891						1040		
95% Queue Length, Q_{95} (veh)	0.1	0.1		0.1						0.0		
Control Delay (s/veh)	8.0	7.4		7.1						6.5		
Level of Service, LOS	A	A		A						A		
Approach Delay (s/veh)	7.7			7.1						6.5		
Approach LOS	A			A						A		
Intersection Delay, s/veh | LOS	7.4						A					

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Appendix D
Developer Market Study

Since 2008, there has been a significant change in mindset amount households. More people are inclined to rent than ever before. This is for a number of reasons, not just the asking price of a home. Those renters also include empty nesters looking to downsize. In 2017, the Crystal Lake Market Area, defined within the market study, had 16% household renters. Today, that figure is 19%. A 3% increase. Suburban Chicago, so not including Chicago proper, has 26.8% household renters. The Crystal Lake Market Area has not developed enough rental units to match the changing demand of households. This is evident by the historically strong occupancy of Crystal Lake. As soon as a new development is built, vacancy rises, but within a very short lease up period, the vacancy drops back below 3%. A stabilized market vacancy of 5-6% indicates sufficient supply and demand. There is a strong demand to keep a longer term pipeline of rental units in the Crystal Lake Market Area above and beyond projects that have been approved or are under construction.

The renter profile for the Pathway Court Apartment project is likely 1) high-earning young professionals, 2) Newly formed families looking to settle down but not ready to purchase a home yet, and 3) empty nesters looking to downsize, eliminate the cost/burden of upkeep, and live in a well designed and high quality unit close to their existing home. As you will see in the Market Study, 58%+ of households in Crystal Lake Market Area are between 45-74 years old. The Redwood development may be an option for individuals looking to downsize, but these individuals need to have options. Our development meets their criteria from a design, location, and community feel. For the young professional and newly formed families, our development is somewhat of an incubator of the next pool of home buyers. Typically, when a household is looking to make their first time home purchase, their first search is the surrounding community. It is where they have lived most recently, they are comfortable in the community, and they have created ties to the community and possible schools. The Pathway Court development creates the incubator needed to grow Crystal Lake.

Jordan Michalkiewicz
VP of Development and Acquisition

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