D.11 Visual Existing Conditions and Impact Assessment Report; completed by Ron Koudys Landscape Architects Inc.

DRAFT REPORT

Visual Existing Conditions and Impact Assessment

W12A Landfill Expansion EA, City of London, Ontario

Submitted to:

Mike Losee, Division Manager, Solid Waste Management
City of London
300 Dufferin Avenue
London, Ontario, PO Box 5035
N6A 4L9

Submitted by: Ron Koudys Landscape Architects Inc

2020-10-27

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Acronyms and Glossary of Terms

Term / Acronym	Definition
CEMMP	Community Enhancement and Mitigative Measures Program
EA	Environmental Assessment
EASR	Environmental Assessment Study Report
ECA	Environmental Compliance Approval
ha	Hectares
LFG	Landfill Gas
MECP	Ministry of Environment, Conservation and Parks
m	Metres
m^2	Square metres
m^3	Cubic metres
masl	Metres above sea level
VACF	Visual Absorption Capability Factor

1. Introduction

The City of London is proposing an expansion of the existing W12A Landfill site (the Project) located at 3502 Manning Drive, part of Lots 18, 19, and 20 of Concession 6 in the former Township of Westminster, in the south end of the City of London, Ontario.
The environment is considered in broad terms to include the natural, social, cultural, and economic aspects of the environment. This document presents the existing conditions and impact assessment for the visual component of the Environmental Assessment (EA) for the proposed W12A Landfill expansion. This work has been conducted in accordance with the requirements set out in the approved Terms of Reference (ToR), dated February 2019.

This report is a supporting document to the Environmental Assessment Study Report (EASR).

2. Existing Conditions

In comparison to other large municipal landfills, the W12A Landfill is relatively flat (covers a larger area relative to its height)). Nevertheless, the existing W12A Landfill is an anomaly rising approximately 9 to 12 metres (m) above an otherwise generally flat to gently sloping landscape.

The existing landfill is located on a surface water divide between the Dingman Creek and Dodd Creek Subwatersheds, with the ground sloping away from the landfill to the southwest at approximately 1 percent and to the north at typically 1-2 percent. The existing landfill can be seen from a distance up to five kilometres from the south and east, three kilometres from the west and one kilometre from the north. Most people who see the existing landfill are at least one kilometre away on main traffic routes (e.g., Highway 401 and Wellington Road).

Closer views of the existing landfill are mainly seen by local residents and truck drivers on the landfill haul routes. Perimeter berms with trees are present around the south, west, north and a portion of the east side of the site to visually screen the existing landfill when in closer proximity. These berms are effective in screening the view of the existing landfill from the road immediately beside the landfill when travelling on Manning Drive and White Oak Road, but not from Scotland Drive or Wellington Road South. Figure 1 shows a typical screening berm with trees.

Depending on the location from which the W12A Landfill is viewed, features in the immediate landscape (foreground) such as landscaping and buildings can take visual precedence over the landfill. This draws the viewer’s attention away and thereby reduces the potential visual impact of the landfill. Factors such as seasonal changes to foliage and the type of agricultural crops present can affect the degree to which the landfill feature is visible and/or noticed.

Figure 1 - Example of a planted screening berm

3. Project Description

3.1. General Description

The proposed landfill expansion consists of a vertical expansion over the existing landfill footprint to provide 13.8 million cubic metres (m^3) of airspace for waste and daily cover. To accommodate ancillary features and provide additional on-Site buffer width compared to the existing landfill, the northern boundary of the landfill property will be adjacent to Scotland Drive and a 100 m buffer width will be provided on the east side of the landfill footprint and some additional area in the southeast corner to tie into the adjacent material recovery facility property line. This results in a 106.3 hectare (ha) landfill footprint within a 192.4 ha landfill property, with a highest ridge elevation of waste of 318.43 metres above sea level (masl).

3.2. Landfill Phasing and Development

The landfill expansion will be developed sequentially in eight Phases (as shown in Figure 2), 1E through 8E, progressing from the west side of the landfill towards the east. Landfilling in each Phase will be approximately 2.5 to 3.5 years based on an expected typical annual air space consumption of 500,000 m^3 per year, which corresponds to an average annual waste

receipt of 370,000 tonnes per year over the 25 year planning period. A separate cell dedicated for disposal of the non-decomposable portion of the waste stream will be provided in the southeastern area of the landfill expansion. Filling in this non-decomposable waste cell will take place in lifts over the 25 year expansion period, and will be blended in to meet the temporary sideslopes in the adjacent Phases 7E and 8E as they are developed. Because this waste is non-decomposable, it would not receive daily cover; however, if it is observed that specific materials are generating odours or are otherwise of concern if left uncovered, daily cover material would be placed. This fill area would receive final cover consistent with that on the remainder of the landfill, but it is not proposed to install a landfill gas collection system in this area as part of the final cover construction.

To commence filling in each Phase, the existing cover material would be progressively stripped from an area large enough to accommodate the year's disposal, which is estimated to average approximately 4 ha. The area of exposed waste would be limited to that needed to spread, compact and cover the waste received on a daily basis, and will range from about 40 m by 25 m typically (1,000 m^2) to 50 m by 30 m (1,500 m^2). The waste will be spread and compacted in lifts of about 0.6 m to a height of approximately 3 m. All waste will be covered daily.

For the southern Phases 1E, 3E, 5E and 7E the waste would be placed initially to build a berm along the south side of the Phase and will be covered with final cover soil and seeded to establish vegetation; the berm will screen the view of subsequent filling operations north of the berm from off-Site vantage points to the south. The south side perimeter waste berm would be raised sequentially and filled in behind until the peak elevation is reached. The Phase boundaries have been designed (offset) such that the completed southern Phases (1E, 3E, 5E, 7E) will effectively screen the view of landfilling operations in the northern Phases (2E, 4E, 6E, 8E) from off-Site vantage points to the south.

Temporary soil berms, and if necessary shallow swales, would be provided to direct surface water runoff from existing covered upslope areas around the active fill areas / Phases to the stormwater management system since this runoff has not been in contact with waste.

On an annual or biannual basis, final cover would then be constructed over areas reaching final grade and permanent vertical landfill gas (LFG) wells will be installed and connected to the LFG gas collection system

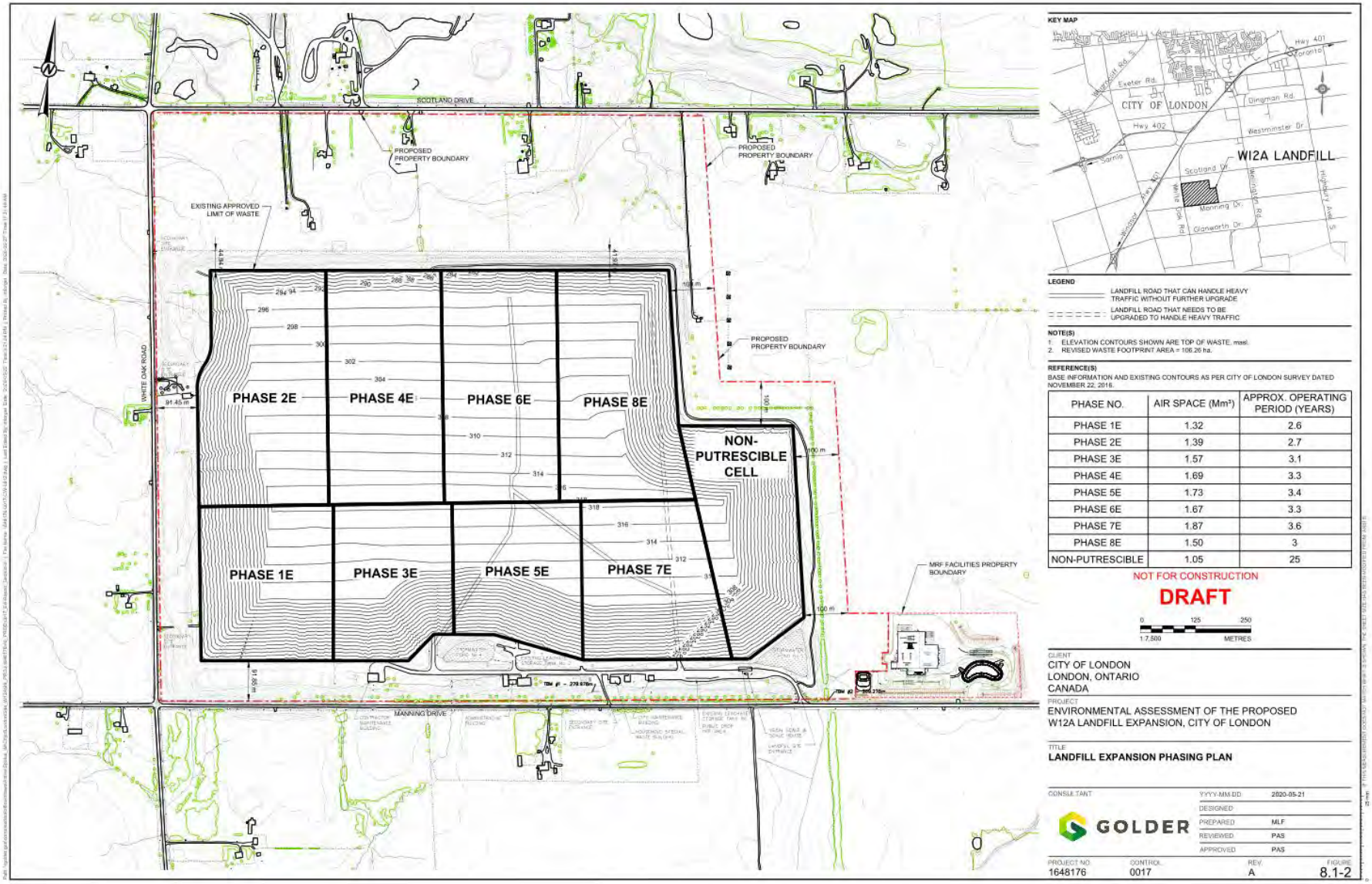

Figure 2 - Landfill Expansion Phasing Plan

4. Impact Assessment

4.1. Overview

The visual impact of the proposed landfill expansion on existing residential properties within 3,500 m of the site (Site-vicinity Study Area) was assessed. This was done by calculating values for the following factors from each point of interest (viewpoints in private outdoor areas and from public rights of way within the Site-vicinity Study Area):

- the visible area of the proposed landfill (in square metres)
- the distance to the nearest visible point (in metres)
- the maximum angle of the cone of view of the visible area of the landfill expansion (in degrees)
- the average slope of the terrain between that viewpoint and the visible proposed landfill area (as a percentage)
- the amount of tree cover between that viewpoint and the visible landfill expansion area (as a percentage)

These factors represent, from a visual perspective, how much of an observer's view is occupied by the proposed landfill, taking into account the intervening terrain's hilliness and tree cover.

Within the Site-vicinity Study Area, comprehensive topographic information describing the terrain, vegetation, and structures was compiled; private and public viewpoints were identified; and the visual effect of the proposed landfill expansion on those views was calculated.

Viewpoints within the Site-vicinity Study Area were selected from private outdoor areas using aerial photography to determine where people would normally gather on their property for outdoor experiences during the summer months (pools, patios, fire-pits, etc.). In the absence of amenities identifiable from the aerial photographs, locations near the house within the backyard were selected.

4.2. Data & Algorithms Used

The following GIS data and algorithms were used in the calculations:

- City of London 2019 Aerial Photography,
- Contours, parcel boundary, and existing limit of waste, taken from the City of London's AutoCAD drawing file project no. 1648176, project title "INDIVIDUAL EA OF THE PROPOSED W12A EXPANSION",
- Significant vegetation (trees and hedges) from the City of London Open Data Catalogue and digitized from aerial photography and site visits,
- Structures (houses, silos, etc.) from the City of London Open Data Catalogue and digitized from aerial photography and site visits,
- Surface and terrain data from Natural Resources Canada High Resolution Digital Elevation Model - CanElevation Series, and

- Viewshed calculation r.viewshed by Laura Toma (Bowdoin College), Yi Zhuang (Carnegie-Mellon University), William Richard (Bowdoin College), and Markus Metz.

4.3. Process

Outdoor private recreation areas were identified using aerial photography, and significant viewpoints from each were selected. From each of these viewpoints, a viewshed was calculated using the aforementioned data sets and algorithms. This calculated viewshed determined what areas of the proposed landfill expansion within the "proposed limit of waste" would be visible, and what intervening topographic features would mitigate the impact of those visible areas.

Each of these factors was then assigned a score, ranging from very low impact to very high impact, and the scores summed to obtain a rating of the total visual effect of the Project on each identified viewpoint.

To check the accuracy of the model, a number of site visits were undertaken to verify the viewshed results. The data used for the viewshed calculations was imported into Google Earth as a 3D model, views of the proposed and existing landfill were generated from that 3D model, and those views were compared with the corresponding views in person. A more comprehensive assessment was undertaken at 4348 McDougall Close, and example photos were taken from chosen views in the private outdoor areas for comparison to the model and its results. This preliminary study confirmed the accuracy of the viewshed ratings and of the real-time views generated by the Google Earth 3D model; the report from that study is included as Appendix A.

4.3.1. Area of Landfill Visible

A score was given based on how much of the landfill expansion is visible; the more of the landfill that is visible, the higher the visual impact rating will be. Given that an object's visual mass decreases as it gets further from its viewer, the distance to the visible areas is taken into account in assessing the visual impact of these areas.

The height and width of each visible portion of the landfill expansion were multiplied to determine the area visible, and then were summed to get the total area of visible landfill. This sum was then divided by the distance to the landfill expansion to get a "Perceived Area Index", and assigned a rating as shown in the following table:

Table 1 Perceived Area Index Ratings

Perceived Area Index (PAI)	Rating	Value
0 – 7.5	Very Low	1
7.51 – 13.0	Low	2
13.1 – 18.0	Moderate	3
18.1 – 23.0	High	4
> 23.0	Very High	5

4.3.2. Cone of View

The angle of an observer's cone of vision that has the greatest clarity is approximately 120°. As the portion of an observer's cone of vision is taken up with the expanded landfill, the impact increases. If the angle encompassing the visible portions of the expanded landfill is between 51° and 90°, the impact was determined to be high; if it is between 31° and 50°, it is determined to be moderate; if it is between 16° and 30°, the impact was low.

To calculate the visual impact of the expanded landfill on the cone of view, the angle between the leftmost and rightmost edges of the visible portions of the landfill were determined and assigned a rating as shown in the following table:

Table 2 Cone of View Ratings

Cone of view	Rating	Value
0° - 15°	Very Low	1
16° - 30°	Low	2
31° - 50°	Moderate	3
51° - 90°	High	4
> 90°	Very High	5

4.3.3. Distance from the Landfill

As the distance between an observer and an object increases, the visual impact decreases, as determined by the nature of focal perception. Impact ratings were assigned based on whether the areas of landfill expansion visible from each viewpoint fall into the foreground, middleground, or background of an observer's view. The distance from the viewpoint to the nearest point of the landfill expansion was determined in metres, and assigned a rating as shown in the following table:

Table 3 Distance Ratings

Distance in Metres	Effect Level	Value
2,201 – 3,500	Very Low	1
1,501 – 2,200	Low	2
801 – 1,500	Moderate	3
601 – 800	High	4
0 – 600	Very High	5

4.3.4. Visual Absorption Capability Factor (VACF)

Finally, the nature of the landscape between the viewpoint and the proposed landfill site was taken into account. The visual impact of an object on a view is mitigated by significant masses of vegetation and changes of grade that occupy the space between it and an observer.

The capability of the terrain in the cone of view to absorb visual impact was calculated based on the mean slope of the terrain and the percent coverage of existing significant vegetation within the previously calculated cone of view, as shown in the following table:

Table 4 Visual Absorption Capability Factor Components

Factor	Range	Value	Description
Slope	0 percent	0	Water
	0.1-5 percent	1	Flat
	5.1-20 percent	2	Rolling
	> 20 percent	3	Rugged
Vegetation (% coverage)	< 1 percent	0	Open
	1-10 percent	1	Sparse
	11-40 percent	2	Moderate
	> 40 percent	3	Dense

These values were then summed to obtain a VACF rating as shown in the following table:

Table 5 Visual Absorption Capability Factor Ratings

Range	Description	Effect Level	Value
6	Very High Visual	Very Low	1
4 – 5	High Visual	Low	2
2 – 3	Moderate Visual	Moderate	3
1	Low Visual	High	4
0	Very Low Visual	Very High	5

4.3.5. Total Visual Effect

All of the previous values were then summed to determine the overall visual effect of the proposed landfill site on each particular viewpoint, as shown in the following table:

Table 6 Total Visual Effect Ratings

Combined Effect Value Scale	Visual Effect
4-6	Very Low Effect
7-9	Low Effect
10-11	Moderate Effect
12-15	High Effect
16-20	Very High Effect

To check the accuracy of the model, a number of site visits were undertaken to verify the viewshed results and compare model-generated with views on-site.

4.4. Assessment

The visual effect of the proposed landfill expansion on the selected viewpoints within the Site-vicinity Study Area is presented in Figure 3 and listed in Table 7. This table lists all properties where the proposed landfill expansion will have a visual impact on the private outdoor areas.

Table 7 shows the landfill expansion will have a very high visual impact on four properties (3691 Manning Drive, 3465 Scotland Drive, 3561 Scotland Drive, and 4067 Scotland Drive) and have a high visual impact on two properties (3452 Glanworth Drive and 4233 Scotland Drive). Three of the six properties with high to very high visual impacts are owned by the City (3465 Scotland Drive, 3561 Scotland Drive and 4233 Scotland Drive) and three properties are privately owned (4067 Scotland Drive, 3691 Manning Drive and 3452 Glanworth Drive). The view of the expanded landfill from each of these properties is presented in Figures 4 to 9. All other properties will have a moderate or lower visual impact.

The expanded landfill is shown in brown-grey to clearly distinguish it from its surroundings. In reality, the expanded landfill will have final cover soil installed and seeded to establish vegetation as the landfill is expanded (as discussed in Section 3.2).
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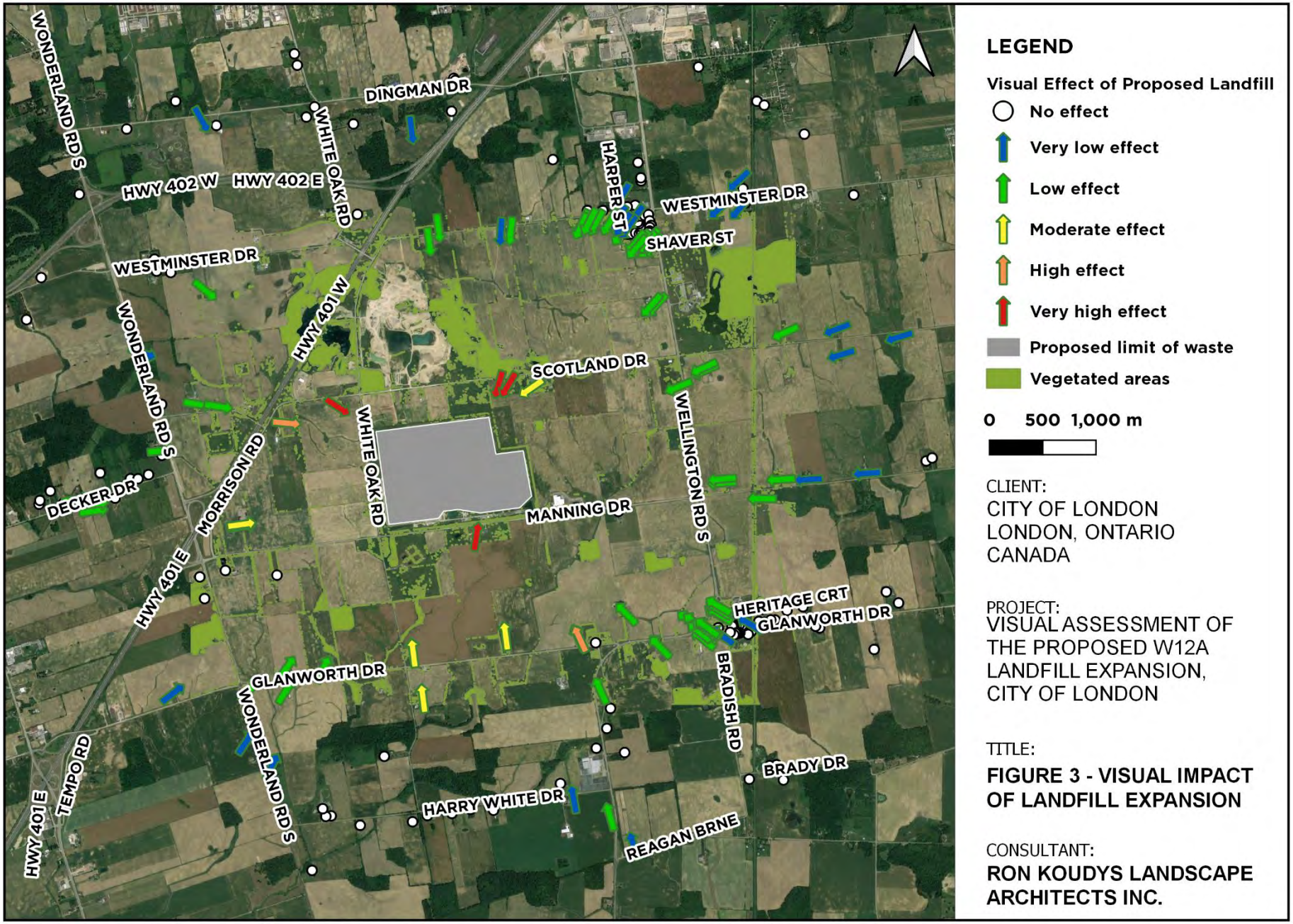
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DINGMAN DR
WHITE OAK RD
HWY 402 W
HWY 402 E
HARPER ST
WESTMINSTER DR
SHAVER ST
WESTMINSTER DR
HWY 401 W
WONDERLAND RD S
SCOTLAND DR
WELLINGTON RD S
WHITE OAK RD
MORRISON RD
DECKER DR
MANNING DR
HWY 401 E
HERITAGE CRT
GLANWORTH DR
GLANWORTH DR
BRADISH RD
WONDERLAND RD S
TEMPO RD
HWY 401 E
HARRY WHITE DR
BRADY DR
REAGAN BRNE
LEGEND
Visual Effect of Proposed Landfill
No effect
Very low effect
Low effect
Moderate effect
High effect
Very high effect
Proposed limit of waste
Vegetated areas
0 500 1,000 m
CLIENT:
CITY OF LONDON
LONDON, ONTARIO
CANADA
PROJECT:
VISUAL ASSESSMENT OF THE PROPOSED W12A LANDFILL EXPANSION, CITY OF LONDON
TITLE:
FIGURE 3 - VISUAL IMPACT OF LANDFILL EXPANSION
CONSULTANT:
RON KOUDYS LANDSCAPE ARCHITECTS INC.

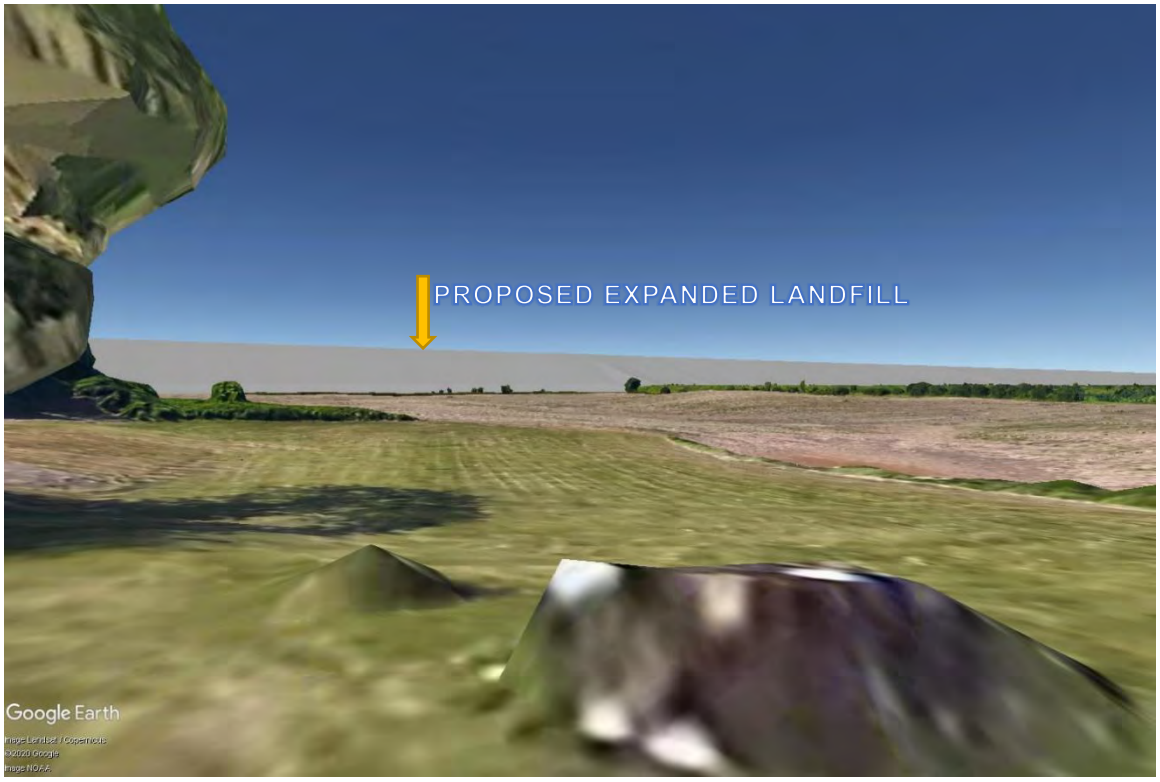

Figure 3 - View of Expanded Landfill from 3465 Scotland Drive

Figure 4 - View of Expanded Landfill from 3561 Scotland Drive

Figure 5 - View of Expanded Landfill from 4067 Scotland Drive

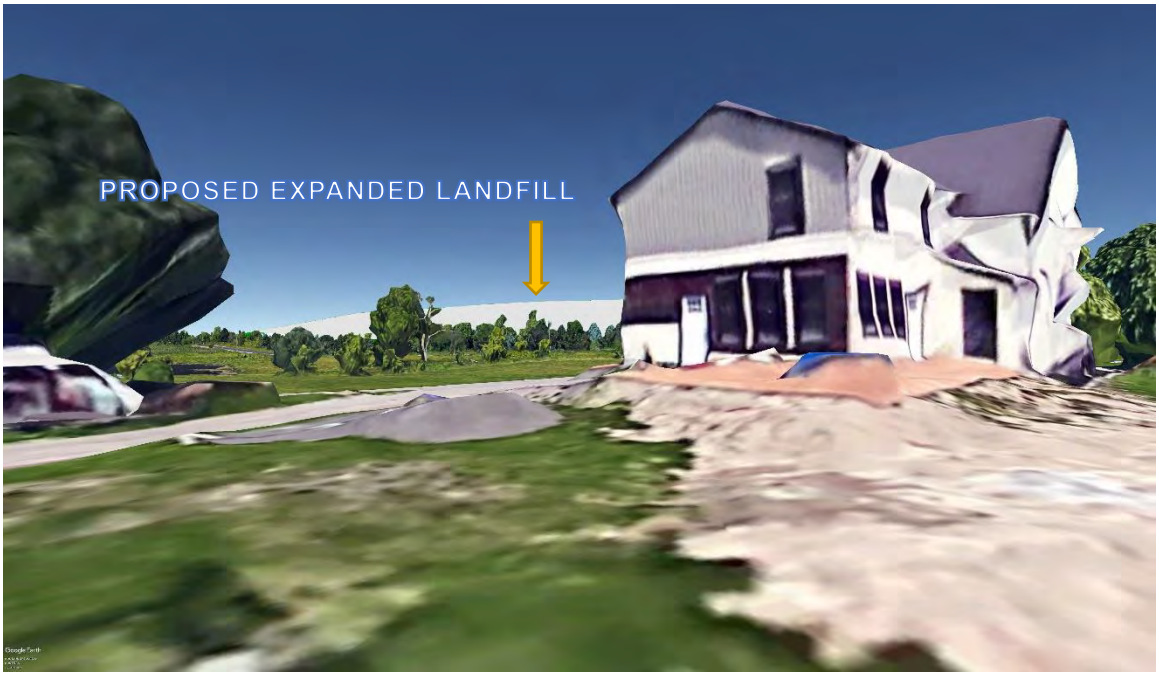

Figure 6 - View of Expanded Landfill from 3691 Manning Drive

Figure 7 - View of Expanded Landfill from 3452 Glanworth Drive

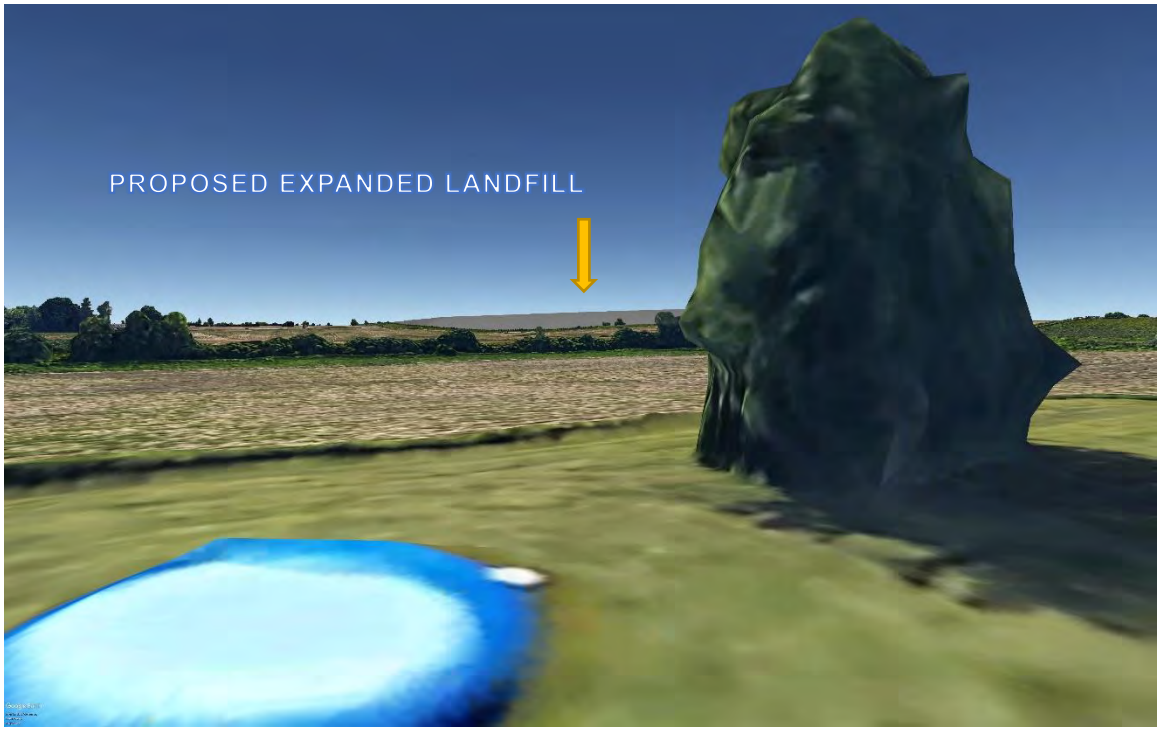

Figure 8 - View of Expanded Landfill from 4233 Scotland Drive

Table 7 Total Visual Effect on Surrounding Properties

Address	PAI Rating	Distance Rating	CoV Rating	VACF Rating	Total Rating	Visual Effect
2307 Scotland Dr	1	1	1	3	**6**	Very Low Effect
2472 Manning Dr	1	1	1	3	**6**	Very Low Effect
2489 Scotland Dr	1	1	1	3	**6**	Very Low Effect
2492 Scotland Dr	1	1	1	3	**6**	Very Low Effect
2656 Manning Dr	1	1	1	3	**6**	Very Low Effect
2700 Westminster Dr	1	1	1	3	**6**	Very Low Effect
2759 Westminster Dr	1	1	1	3	**6**	Very Low Effect
2807 Westminster Dr	1	1	1	3	**6**	Very Low Effect
2920 Glanworth Dr	1	1	1	3	**6**	Very Low Effect
3011 Glanworth Dr	1	1	1	3	**6**	Very Low Effect
3088 Westminster Dr	1	1	1	3	**6**	Very Low Effect
3115 Westminster Dr	1	1	1	3	**6**	Very Low Effect
3346 Reagan Brne	1	1	1	3	**6**	Very Low Effect
3507 Harry White Dr	1	1	1	3	**6**	Very Low Effect
3513 Westminster Dr	1	2	1	2	**6**	Very Low Effect
3699 Dingman Dr	1	1	1	3	**6**	Very Low Effect
4351 Dingman Dr	1	1	1	3	**6**	Very Low Effect
5012 Harper St	1	1	1	3	**6**	Very Low Effect
5043 Harper St	1	1	1	3	**6**	Very Low Effect
5268 Wonderland Rd S	1	1	1	3	**6**	Very Low Effect
6304 Glanworth Dr	1	1	1	3	**6**	Very Low Effect
6667 Wonderland Rd S	1	1	1	3	**6**	Very Low Effect
6760 Wonderland Rd S	1	1	1	3	**6**	Very Low Effect
2746 Manning Dr	1	1	1	4	**7**	Low Effect
3008 Heritage Crt	1	2	1	3	**7**	Low Effect
3019 Heritage Crt	1	2	1	3	**7**	Low Effect
3026 Heritage Crt	1	2	1	3	**7**	Low Effect
3033 Shaver St	1	1	2	3	**7**	Low Effect
3051 Shaver St	1	2	1	3	**7**	Low Effect
3067 Shaver St	1	2	1	3	**7**	Low Effect
3072 Glanworth Dr	1	2	1	3	**7**	Low Effect
3110 Shaver St	1	2	1	3	**7**	Low Effect
3155 Westminster Dr	1	2	1	3	**7**	Low Effect
3331 Westminster Dr	1	2	1	3	**7**	Low Effect
3656 Westminster Dr	1	2	1	3	**7**	Low Effect
3703 Westminster Dr	1	2	1	3	**7**	Low Effect
4350 Glanworth Dr	1	2	1	3	**7**	Low Effect
4371 Glanworth Dr	1	2	1	3	**7**	Low Effect

Table 7 Total Visual Effect on Surrounding Properties

Address	PAI Rating	Distance Rating	CoV Rating	VACF Rating	Total Rating	Visual Effect
5033 Harper St	1	2	1	3	**7**	Low Effect
5109 Wellington Rd S	1	1	1	4	**7**	Low Effect
5137 Wellington Rd S	1	2	1	3	**7**	Low Effect
5369 Wellington Rd S	1	2	1	3	**7**	Low Effect
6314 Decker Dr	1	1	1	4	**7**	Low Effect
6341 Bradish Rd	1	2	1	3	**7**	Low Effect
6351 Bradish Rd	1	2	1	3	**7**	Low Effect
6367 Bradish Rd	1	2	1	3	**7**	Low Effect
6399 Wellington Rd S	1	2	1	3	**7**	Low Effect
6506 Wonderland Rd S	1	2	1	3	**7**	Low Effect
6540 Wellington Rd S	1	2	1	3	**7**	Low Effect
7077 Wellington Rd S	1	1	2	3	**7**	Low Effect
2652 Scotland Dr	2	1	2	3	**8**	Low Effect
2797 Manning Dr	1	2	1	4	**8**	Low Effect
2910 Manning Dr	1	2	2	3	**8**	Low Effect
2939 Scotland Dr	1	2	2	3	**8**	Low Effect
3058 Glanworth Dr	1	2	2	3	**8**	Low Effect
3179 Westminster Dr	1	2	2	3	**8**	Low Effect
3205 Westminster Dr	1	2	2	3	**8**	Low Effect
3483 Westminster Dr	1	2	2	3	**8**	Low Effect
4248 Glanworth Dr	1	3	1	3	**8**	Low Effect
4436 Scotland Dr	1	3	1	3	**8**	Low Effect
5371 Wellington Rd S	1	2	2	3	**8**	Low Effect
6267 Decker Dr	1	1	2	4	**8**	Low Effect
6597 Wellington Rd S	1	3	1	3	**8**	Low Effect
3041 Heritage Crt	2	2	2	3	**9**	Low Effect
3071 Glanworth Dr	2	2	2	3	**9**	Low Effect
3084 Glanworth Dr	2	2	2	3	**9**	Low Effect
3137 Scotland Dr	2	2	2	3	**9**	Low Effect
3223 Westminster Dr	1	2	2	4	**9**	Low Effect
4429 Westminster Dr	2	2	1	4	**9**	Low Effect
5567 Wonderland Rd S	1	2	2	4	**9**	Low Effect
5595 Wellington Rd S	2	2	2	3	**9**	Low Effect
6421 Wellington Rd S	2	2	2	3	**9**	Low Effect
6601 Wellington Rd S	2	3	1	3	**9**	Low Effect
6643 Fisher Lane	2	2	2	3	**9**	Low Effect
3674 Glanworth Dr	2	3	2	3	**10**	Moderate Effect
4412 Manning Dr	1	3	2	4	**10**	Moderate Effect

Table 7 Total Visual Effect on Surrounding Properties

Address	PAI Rating	Distance Rating	CoV Rating	VACF Rating	Total Rating	Visual Effect
3405 Scotland Dr	2	5	1	3	**11**	Moderate Effect
6368 White Oak Rd	2	3	3	3	**11**	Moderate Effect
6602 White Oak Rd	2	2	3	4	**11**	Moderate Effect
3452 Glanworth Dr	3	3	3	3	**12**	High Effect
4233 Scotland Dr	2	3	3	4	**12**	High Effect
4067 Scotland Dr	4	5	4	3	**16**	Very High Effect
3465 Scotland Dr	5	5	4	4	**18**	Very High Effect
3561 Scotland Dr	5	5	4	4	**18**	Very High Effect
3691 Manning Dr	5	3	5	5	**18**	Very High Effect

5. Mitigation

5.1. General

To reduce the visual impact of the proposed landfill expansion, topographic and vegetative elements between potentially-affected views and the landfill should be preserved and, where possible, introduced. Using the viewshed model, the views most impacted can be identified and locations for the most effective interventions determined. Fundamentally, these measures will either reduce the area of the landfill visible (the perceived area or cone of view) or increase the visual-absorption capability of the landscape.

The closer these mitigative measures are placed to an impacted viewpoint, the more effective they will be at reducing that visual effect, but the less likely they will be to ameliorate other views. Conversely, mitigation closer to the target of these views (the expanded landfill) will be less effective at mitigating any particular view but will mitigate more views in total.

The most effective measure at reducing visual impact is screening; physically interrupting a line of site to reduce or remove entirely a view of the proposed landfill. Where that is not feasible, measures such as distraction or a combination of measures can be used. By strategically placing a landscape feature that catches the eye or attracts attention within the sight lines of an impacted view, such as an attractive sign along a right-of-way that has views of the proposed landfill, the perceived visual effect can be reduced by distracting the eye away from the landfill and towards the sign. If landscape elements are introduced within a viewshed to be mitigated that are visually similar to the landfill, establish a pattern that incorporates it, frames the view of it, etc., then the combination of visual impacts may be less than just the expanded landfill on its own.

This planned mitigation can be grouped into phases, addressing immediate impacts first. Screening to be provided by tree plantings can be planned to grow as the landfill expands.

5.2. Operations

As discussed earlier, the most obvious views of the proposed landfill are to the south. To reduce the visual impact of daily operations, waste would be placed initially to build a berm along the south side of the landfill's waste disposal area and will be covered with final cover soil and seeded to establish vegetation. This berm will screen the view of subsequent filling operations north of the berm from off-site vantage points to the south. The south side perimeter waste berm would be raised sequentially and filled in behind until the peak elevation is reached.

5.3. Roadways

The existing perimeter berms with trees on the south, west, north and a portion of the east sides of the landfill are effective at visually screening the existing landfill and expected to continue to screen the view of the expanded landfill from traffic beside the landfill on Manning Drive and White Oak Drive, but not from Scotland Drive or Wellington Road South.

The following figures show existing views from the surrounding roadways and those same views with the proposed landfill expansion shown in green.

Figure 9 - View of existing landfill from Wellington Road South

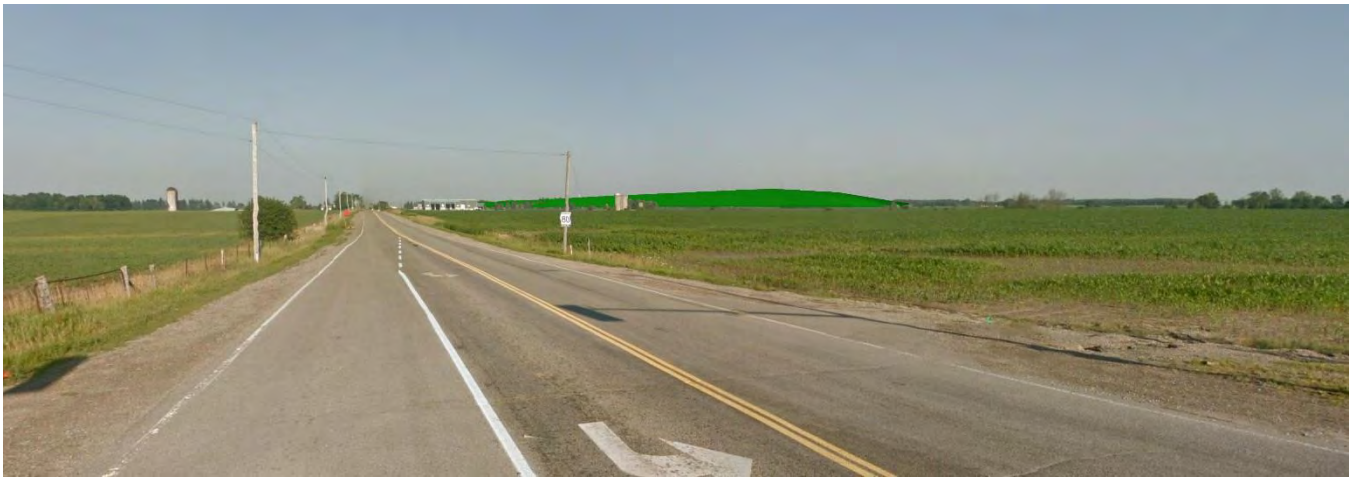

Figure 10 - View of Proposed Expansion from Wellington Road South

Figure 11 - View of existing landfill from Glanworth Drive

Figure 12 - View of Proposed Expansion from Glanworth Drive

Figure 13 - View of existing landfill from Highway 401

Figure 14 - View of Proposed Expansion from Highway 401

With the expansion, the landfill property boundary will be moved northward to Scotland Drive and new berms with tree plantings will be constructed along the new property boundary (White Oak Road northward to Scotland Drive, Scotland Drive). This will visually screen the landfill expansion from traffic beside the landfill on Scotland Drive.

Drivers on Wellington Road South east of the landfill will continue to see the site if they look in the direction of the landfill. However, the landfill expansion is not in the direct line of sight for the driver and is over 1.5 kilometres away. These factors help to mitigate views from Wellington Road South.

There are other roads near the landfill from which the expanded landfill will be visible (e.g., Glanworth Drive). In many cases, these roads are not in the direct line of sight for the driver and are far enough away, which will help to mitigate the visual impact. In some locations, specific view-mitigation measures may be warranted.

An example of a specific view-mitigation measure would be a planting strategy like shown in Figure 16 that can be implemented to mitigate views of the W12A site from nearby roads, creating an idyllic country-road feel with a minimal investment. Here, plantings of deciduous trees along the roadside creates a continuous screen that effectively blocks the view to the adjacent properties. When viewed from a vehicle where the occupants are looking forward, the trunks of the trees align to effectively direct the view down the road rather than to the side.

Figure 15 - An example of roadside tree-based visual mitigation once it has matured

The City will seek feedback on appropriate roadside view-mitigation measures from area residents when it updates its Community Enhancement and Mitigative Measure Program (CEMMP). The CEMMP is discussed further in Section 5.4

The effectiveness of each mitigation measure can be assessed using the viewshed model to “see” what the impact will be over time.

5.4. Residential Properties

As noted earlier, the landfill expansion will have a high to very high visual impact on six properties. Three of these properties are owned by the City and three properties are privately owned. Many other properties have a very low to moderate visual impact.

The City currently has a W12A Landfill Community Enhancement and Mitigative Measures Program. The CEMMP is part of the City’s overall efforts to reduce and address the negative effects of the W12A Landfill on neighbouring properties. Work on developing the CEMMP began in 2006 and was approved by Council in 2009. The Program was updated in 2010 and again in 2014. The current CEMMP consists of five programs or actions:

- Property Value Protection Plan
- “Right of First Refusal” Program
- Community Mitigative Measures Fund
- No Charge Waste Disposal
- Public Liaison Committee (PLC)

The City will be updating the CEMMP in consideration of the proposed expansion of the landfill. The first step in updating the CEMMP will be seeking stakeholder feedback on how the program can be improved, including what are appropriate visual screening measures for residential properties.

6. Monitoring

No formal visual monitoring is required. In the future, potential concerns over visual impacts as the landfill expands will be able to be taken to the W12A Landfill Public Liaison Committee or the City’s Civic Works Committee for consideration.

7. Other Approvals

The Project will require an application for an amendment of the Environmental Compliance Approval (ECA) for waste under Section 27 of the *Environmental Protection Act*. The on-site screening measures (operational berm on south site of landfill’s waste disposal area and new screening berms along White Oak Road and Scotland Drive) will be part of this approval.

8. Conclusion

There will be increased visual impacts to the area as a result of the vertical expansion of the W12A Landfill. For most off-site locations, the impact will be a low to moderate visual impact. For six residential properties, the impact will be a high or very high visual impact.

The City will be seeking stakeholder feedback on appropriate screening measures for off-site locations as part of updating its CEMMP.

The landfill design will also include additional on-site berms and vegetation to provide further screening, which will be part of the landfill's ECA approval.

RON KOUDYS LANDSCAPE ARCHITECTS INC

Appendix A- 4348 McDougal Individual Assessment

368 OXFORD STREET EAST, LONDON, ONTARIO, CANADA N6A 1V7 | T: 519-667-3322 | F: 519-645-2474 | E: MAIL@RKLA.CA | W: RKLA.CA

Comparison of W12A Landfill views with the 3D Model

1. Introduction

During the open house held on February 27th, 2020, an area resident suggested that the visible portion of the existing W12A Landfill within the Google Earth 3D model, as seen from his property, was significantly smaller than what portion is actually visible.
The model's detailed 3D topography of the area extends to approximately 1 kilometre south of the W12A Landfill site, beyond which only the ground is shown. This limitation of the 3D model was explained at the open house, and increases the apparent visual impact of the landfill, as screening elements of the landscape such as trees are not shown.

The residence in question is approximately 300 metres beyond the detailed model area, and significant vegetation between the views from the private outdoor areas and the landfill are not represented.

Photos of the landfill from the areas concerned were supplied by the resident, and a photo from the street was taken by Ron Koudys. The views represented in these images were recreated within the 3D model and overlain on the originals.
Towers on 6150 White Oak Road were visible in the photographs, and so were added to the model to assist with the comparison of model views with the photographs, but these towers were not shown during the open house.

DRAFT

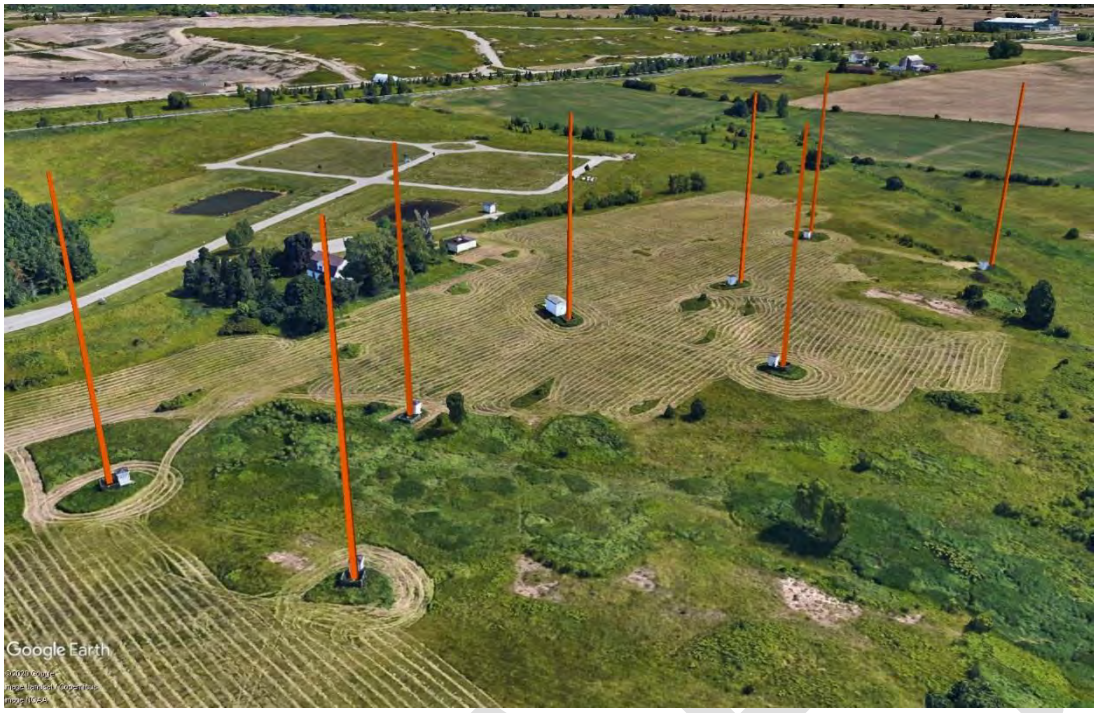

Figure 16 - view of towers added to the 3D model on 6150 White Oak Rd.

DRAFT

2. Comparison of site photos and views from the 3D model

2.1. Photo titled “Glanworth 50mm_MG_3071.5”

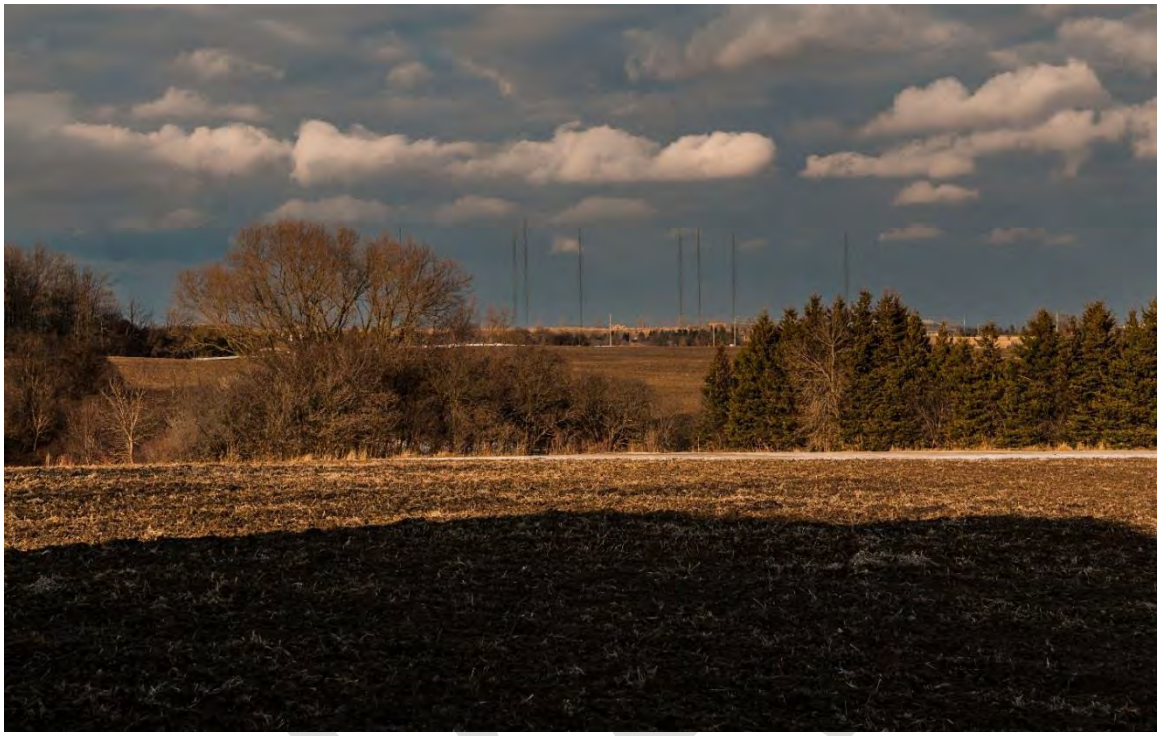

Figure 17 - Photo from resident titled "Glanworth 50mm_MG_3071.5”

DRAFT

Figure 18 - Matched view from 3D model with towers to Figure 2

Figure 19 - Matched view from 3D model as shown at the open house to Figure 2

2.2. **Photo titled “Glanworth 50mm_MG_3062-2.5”**

Figure 20 - Photo from resident titled "Glanworth 50mm_MG_3062-2.5”

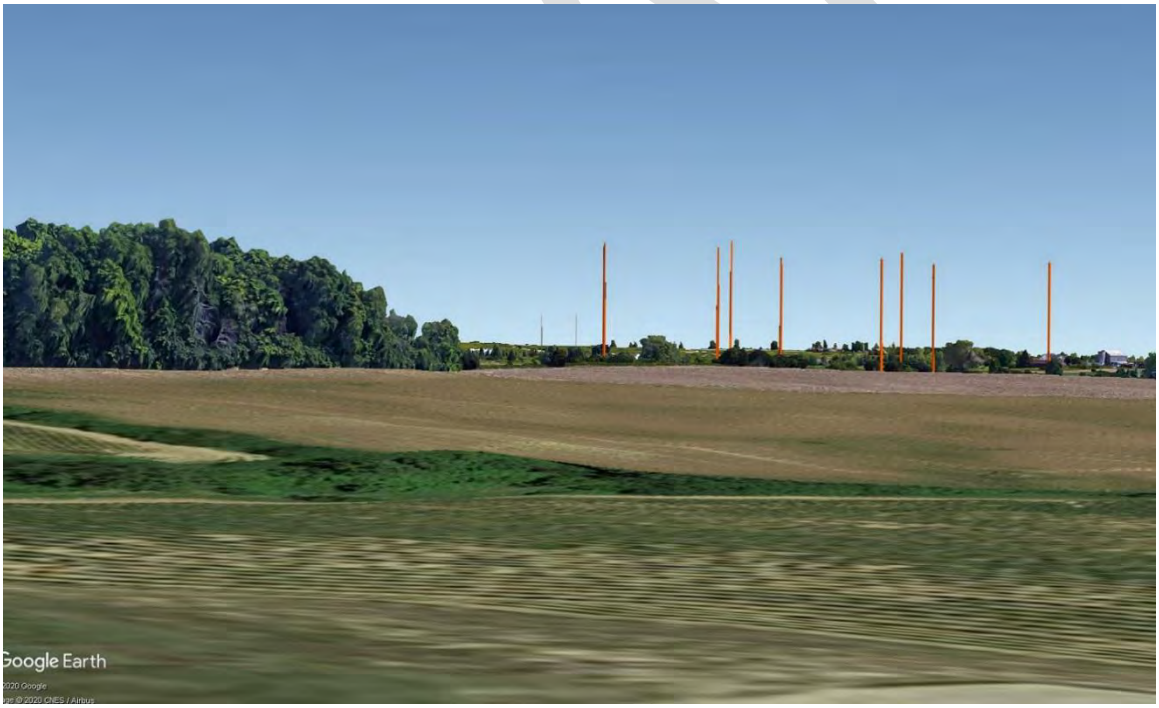

Figure 21 - Matched view from 3D model with towers to Figure 5

Figure 22 - Matched view from 3D model as shown at the open house to Figure 5

2.3. **Photo taken by Ron Koudys**

Figure 23 - Photo of landfill from street in front of 4248 Glanworth Dr

Figure 24 - Matched view from 3D model with towers to Figure 8

Figure 25 - Matched view from 3D model as shown at the open house to Figure 8

3. Comparison of W12A Expansion Alternatives from 4248 Glanworth Dr.

3.1. From the location of photo titled “Glanworth 50mm_MG_3071.5”

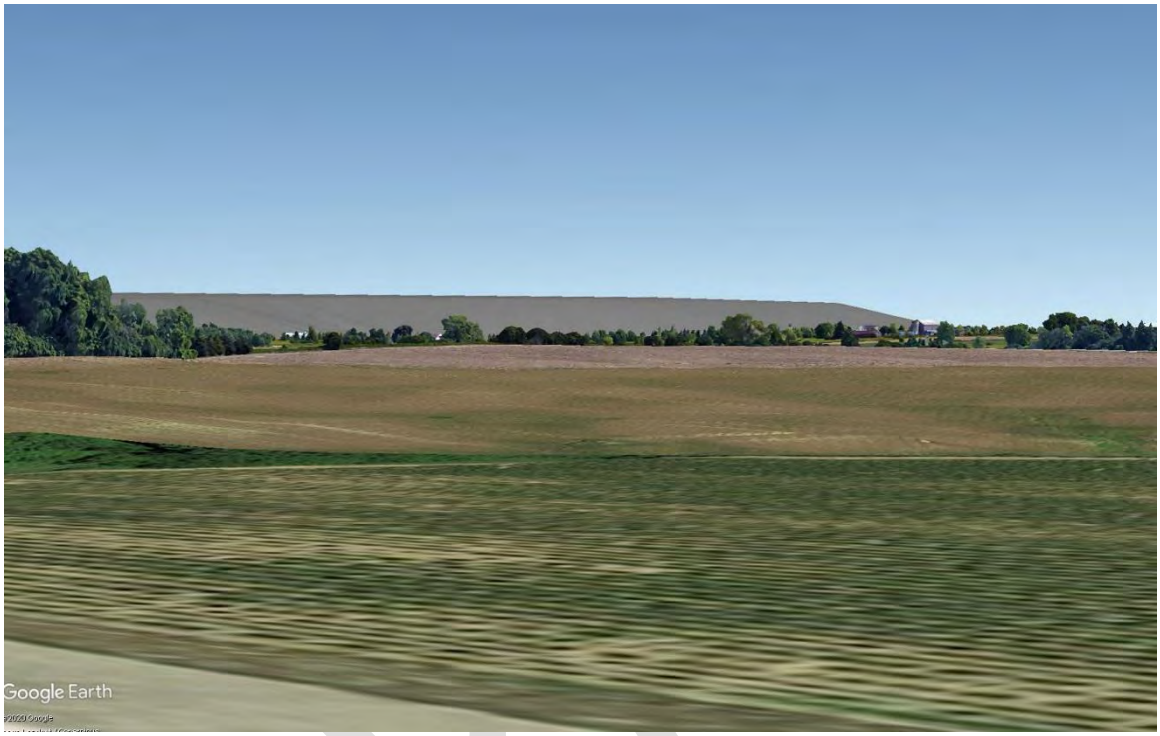

Figure 26 - View of Alternative 1 (vertical expansion) from the same location as Figure 2

Figure 27 - View of Alternative 2 (northward expansion) from the same location as Figure 2

Figure 28 - View of Alternative 3 (eastward expansion) from the same location as Figure 2

3.2. **From the location of photo titled "Glanworth 50mm_MG_3062-2.5”**

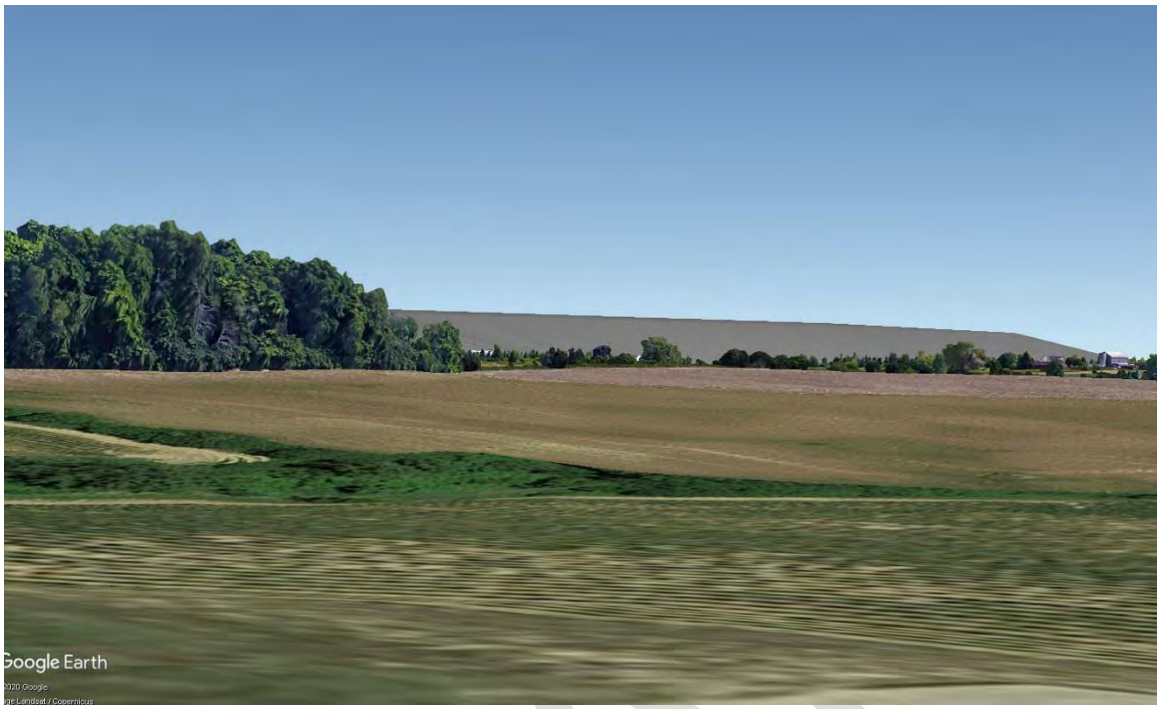

Figure 29 - View of Alternative 1 (vertical expansion) from the same location as Figure 5

Figure 30 - View of Alternative 2 (northward expansion) from the same location as Figure 5

Figure 31 - View of Alternative 1 (eastward expansion) from the same location as Figure 5

4. Conclusion

As demonstrated by the images in section 2, the visible portion of the existing landfill from 4248 Glanworth Drive in the 3D model presented at the open house on February 27, 2020 matches closely with the visible portion of the landfill in photographs taken on-site.

DRAFT

D.12 Traffic Assessment in Support of the Environmental Assessment; completed by Dillon Consulting Limited

DILLON CONSULTING

CITY OF LONDON

W12A Landfill Expansion

Draft Traffic Assessment in Support of the Environmental Assessment

November 2020 –17-6528

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Appendices

A Traffic Volume Data
B Traffic Signal Timing Plans
C Level of Service (LOS) Definitions
D Synchro Analysis Worksheets
E MTO Traffic Data

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Acronyms, Abbreviations, Definitions

a.m., ante meridiem i.e., before midday.

AADT, Annual Average Daily Traffic Volume.

ADT, Average Daily Traffic.

ATR, Automatic Traffic Recorder.

Act (the), refers to the Environmental Assessment Act. Also known as EAA, or the EA Act.

DHV, Design Hourly Volume

EA, Environmental Assessment, means an environmental assessment process described in Part II of the EAA and/or report submitted pursuant to subsection 5(1) of the EAA[1].

ECA, Environmental Compliance Approval is a license or permit issued by the Ministry of the Environment, Conservation and Parks for the operation of a waste management facility or site.

EDR, Emergency Detour Route.

Haul Route(s), prior to 2015 the W12A Landfill haul route encompasses the right-of-way adjacent to Wellington Road for all north/south landfill truck traffic to and from the City of London. In late 2015, Wonderland Road (Highway 4) north of Manning Drive was added to the landfill haul route as a second north/south connection to the City of London upon completion of the Highway 401 and Wonderland Road (Highway 4) interchange.

HCM, Highway Capacity Manual.

HGV, Heavy Goods Vehicle.

HSW, Household Special Waste.

Landfill, refers to an approved, engineered site used for the long-term disposal of waste.

LOS, Level of Service.

masl, metres above sea level

[1] *MECP, Environmental Assessment Act, 1990.*

MECP, Ministry of the Environment, Conservation and Parks; formerly Ministry of Environment and Climate Change, Ministry of the Environment, and Ministry of the Environment and Energy.

MRF, Material Recovery Facility.

MTO, Ministry of Transportation, Ontario.

on-site, this refers to the area within the W12A Landfill site boundary.

p.m., post meridiem i.e., after midday.

PPS, Provincial Policy Statement, 2014.

SWM, Stormwater Management

TMC, Turning Movement Count.

ToR, Terms of Reference.

V/C, volume divided by capacity, typically represents the sufficiency of an intersection, approach or movement at an intersection to accommodate the vehicular demand.

W12A Landfill, an existing landfill found within the City of London on the north side of Manning Drive between White Oak Road and Wellington Road

1.0 Introduction

The City of London is proposing an expansion of the existing W12A Landfill site (the Project) located at 3502 Manning Drive, part of Lots 18, 19 and 20 of Concession 6 in the former Township of Westminster, in the south end of the City of London, Ontario.

The environment is considered in broad terms to include the natural, social, cultural, and economic aspects of the environment. This document presents the transportation component for the existing conditions and impact assessment for the Environment Assessment (EA) of the proposed W12A Landfill expansion. Dillon Consulting Limited (Dillon) was retained to assist with the transportation component. This work has been conducted in accordance with the requirements set out in the approved Terms of Reference (ToR), dated February 2019.

This report is a supporting document to the Environmental Assessment Study Report (EASR).

1.1 Overview of Report Contents

This report describes the baseline transportation/traffic environment in the area surrounding the W12A Landfill site and potential changes to the future transportation/traffic environment due to the proposed landfill expansion. The report consists of the following:

- **Section 1.0** presents an introduction to the study, a description of the site, and the role and scope of the transportation assessment
- **Section 2.0** describes the existing traffic/transportation conditions along the designated haul routes
- **Section 3.0** describes the proposed expansion and summarizes and assesses the future traffic/transportation conditions along the designated haul routes to a future horizon period
- **Section 4.0** outlines any required mitigation or monitoring from a traffic/transportation standpoint
- Appendices provide information that support the transportation/traffic assessment.

1.2 Transportation Work Plan

The ToR describes the methodology to be followed to characterize baseline transportation/traffic conditions within the W12A Landfill Site-vicinity (Haul Route) Study Area. The methodology and indicators will be used to evaluate the impact assessment

of the preferred undertaking, including mitigation measures, monitoring, and/or contingency plans for the operation of the preferred landfill expansion alternative. **Table 1** summarizes the work plan for transportation.

Table 1: Transportation Work Plan

Indicator(s)	Data Collection and Field Work	Prediction of Potential Effects for the Preferred "Alternative Method"	Data Sources
The expected effect on traffic along the haul routes.	Obtain available recent traffic data for several of the intersections and corridors within the Site-vicinity Study Area. Collect turning movement count (TMC) data for Manning Drive at White Oak Road, Wonderland Road, Wellington Road, and primary site access locations, including vehicle classifications for regular automobiles, heavy goods vehicles (HGV), and slow-moving/farm vehicles. Estimate Annual Average Daily Traffic (AADT) volumes on Wonderland Road, Manning Drive, and Wellington Drive. Obtain signal timing data for Manning Drive at Wellington Road and Wellington Road at Dingman Drive. Site visit to confirm geometric conditions and observe operating conditions in context.	Assess existing hourly and daily carrying capacity of the Site-vicinity Study Area roads. Assess existing intersection level of service (LOS) and other performance metrics for the Site-vicinity Study Area intersections to confirm overall intersection and critical movement performance (capacity and delay). Assess future traffic operation and safety requirements of the defined Site-vicinity Study Area (adjacent roadway and haul routes) conditions. Assess potential intersection geometric requirements for mitigation. Undertake warrants to confirm auxiliary lane and/or intersection control requirements, as necessary. Assess sensitivity/impacts of partial haul route closure or activation of Highway 401 EDR, up to two alternatives.	TMC, AADT, and signal timing data. Additional tonnage and the resulting number of trucks to the site due to expansion. Collision history statistics. Existing site-specific and related studies, consultant observations, and available City planning and engineering documents.

1.3 Role of the Transportation Discipline in the Environmental Assessment

In accordance with the approved Terms of Reference (ToR), the indicator to be considered for traffic is:

- The expected effect on traffic along the Haul Routes.

This relates to changes in future traffic operation and safety requirements.

1.4 Guiding Documents and Policies

The guidelines and policies reviewed for this report included the following:

- Proposed New Land Uses Adjacent to W12A Landfill: Traffic Impact Assessment, IBI Group, November 2009
- Environmental Screening Process W12A Landfill Service Area Amendment Draft Background Document, City of London, August 2015
- Wonderland Road South Municipal Class Environmental Assessment: Environmental Study Report, MMM Group, August 2015
- Open Data Catalogue (https://www.london.ca/city-hall/open-data/Pages/Open-Data-Data-Catalogue.aspx), City of London, October 2017.

As a result of these policies, transportation resources and activities should be protected, where possible.

1.5 Study Areas

The scope of this assessment was to examine the potential impacts of the proposed expansion of the W12A Landfill Site on the transportation network along the haul routes to the site.

The term "Study Area" refers to those areas for which data was collected and impact analyses were carried out. For the purposes of the transportation assessment, the Study Areas have been defined as follows:

- **Site** – consists of the existing W12A Landfill Site and adjacent area of land within which landfill expansion may occur.
- **Site – vicinity (Haul Route)** – prior to 2015 the W12A Landfill haul route was only along Wellington Road for all north/south landfill truck traffic to and from the City of London. In late 2015, Wonderland Road (Highway 4) was added to the landfill haul route as a second north/south connection to the City of London upon completion of the Highway 401 and Wonderland Road (Highway 4) interchange.

Figure 1 illustrates W12A Landfill designated haul routes along both Wonderland Road (Highway 4) and Wellington Road.

Figure 1: Site-Vicinity Study Area

2.0 Existing Conditions

This section describes the existing transportation conditions related to the W12A Landfill site, along the designated haul routes within the City of London.

2.1 Surrounding Context

Wonderland Road (Highway 4) is classified as an arterial road within the Site-vicinity Study Area and is under the jurisdiction of the City of London. In 2018, the City of London and Ministry of Transportation, Ontario (MTO) agreed to sign and designate Wonderland Road as Highway 4 north of Highway 401 through the City of London, although no changes were made from a jurisdictional standpoint. Wonderland Road (Highway 4) runs in a north-south direction to the west of the W12A Landfill site. Wonderland Road (Highway 4) also connects to both Highway 401 and Highway 402 with full movement interchanges.

In 2018, Wonderland Road (Highway 4) was upgraded to the north of Highway 401 to incorporate wider travel lanes, paved shoulders and turning lanes at intersections. Wonderland Road (Highway 4) is one of the two designated haul routes for W12A Landfill truck traffic. Within the Site-vicinity Study Area, the roadway has a two-lane cross-section with turning lanes at intersections and a posted speed limit of 80 km/h.

Wellington Road is classified as an arterial road within the Site-vicinity Study Area and is under the jurisdiction of the City of London. Wellington Road primarily has a rural two-lane cross-section that extends to the north and south to the east of the W12A Landfill site. To the north of Westminster Drive, Wellington Road expands to a rural four-lane roadway. Wellington Road operates as a major carrier for vehicle traffic between the City of St. Thomas and the City of London. Within the Site-vicinity Study Area, the posted speed limit is 80 km/h to the south of Scotland Drive and 70 km/h north of Scotland Drive. The Highway 401 Emergency Detour Route (EDR) travels along Wellington Road south of Highway 401 to Manning Drive.

Manning Drive is classified as an arterial road within the Site-vicinity Study Area and is under the jurisdiction of the City of London. Manning Drive extends in an east-west direction to the immediate south of the current W12A Landfill. The road primarily has a two-lane rural cross-section featuring gravel shoulders. No curbs or sidewalks are present along the corridor. Manning Drive serves as a designated access route to the existing landfill site and primarily serves landfill-related activities. Manning Drive also serves local access to adjacent properties not associated with the landfill. Manning

Drive has a posted speed limit of 70 km/h to the west of the landfill entrance and 80 km/h to the east of the landfill entrance. With the addition of the Highway 401 and Wonderland Road (Highway 4) interchange, Manning Drive serves as the EDR for Highway 401 between the Wonderland Road (Highway 4) and Wellington Road interchanges.

Westminster Drive is classified as an arterial road with a two-lane cross-section and a posted speed limit of 80 km/h. The roadway generally runs in an east-west direction within the City of London limits.

Dingman Drive is classified as an arterial road and is under the jurisdiction of the City of London. The roadway extends from Wonderland Road (Highway 4) easterly across Wellington Road to Old Victoria Road. Within the Site-vicinity Study Area, the roadway has a two-lane cross-section and a posted speed limit of 60 km/h.

Scotland Drive is classified as an arterial road within the City of London. It has a two-lane cross-section and a posted speed limit of 80 km/h. The roadway generally runs in an east-west direction from Wonderland Road (Highway 4) across Highway 401 and Wellington Road and connecting to Old Victoria Road within the City of London limits.

Decker Drive is classified as an arterial road within the City of London, which starts from Wonderland Road (Highway 4) and extends westerly to and across Colonel Talbot Road within the City of London limits. Within the Site-vicinity Study Area, the roadway has a two-lane cross-section and a posted speed limit of 60 km/h.

Morrison Road is classified as an arterial road with a two-lane cross-section and a posted speed limit of 80 km/h. The roadway generally runs in a north-south direction connecting Manning Drive to Scotland Drive.

White Oak Road is classified as an arterial road between Harry White Drive and Southdale Road. The roadway generally runs in a north-south direction to the immediate west of the W12A Landfill. Within the Site-vicinity Study Area, the posted speed is 60 km/h to the south of Manning Drive and 80 km/h to the north.

Highway 401 is classified as a provincial freeway that extends between Windsor and the Quebec border. Highway 401 is under the jurisdiction of the MTO. At the Wonderland Road (Highway 4) interchange, Highway 401 features a four-lane cross-section. At the Wellington Road interchange, Highway 401 features a six-lane cross-section. A concrete raised median is present within the Site-vicinity Study Area interchanges. The posted speed limit is presently 100 km/h.

W12A Landfill Access consists of two accesses to Manning Drive and two accesses to White Oak Road. The two accesses to Manning Drive serve the following functions: the easterly access is the primary access and egress for the landfill, while the westerly access is the secondary egress in the southbound (outbound) direction only, which is used by visitors using the Household Special Waste (HSW) depot. Significant haul vehicle activity occurs at the easterly (primary) access only.

The two accesses to White Oak Road serve the following functions: the northerly access provides access to an existing stormwater management pond (SWM), while the southerly driveway functions as an emergency access. Both accesses are gated and seldom used.

Material Recovery Facility (MRF) Access consists of two accesses to Manning Drive found to the east of the W12A Landfill driveways. The easterly access is the primary access and egress for the MRF while the westerly access is the secondary access and egress for staff and visitors. Significant haul vehicle activity occurs at the easterly (primary) access only.

Figure 2 illustrates the existing lane geometry of the haul routes.

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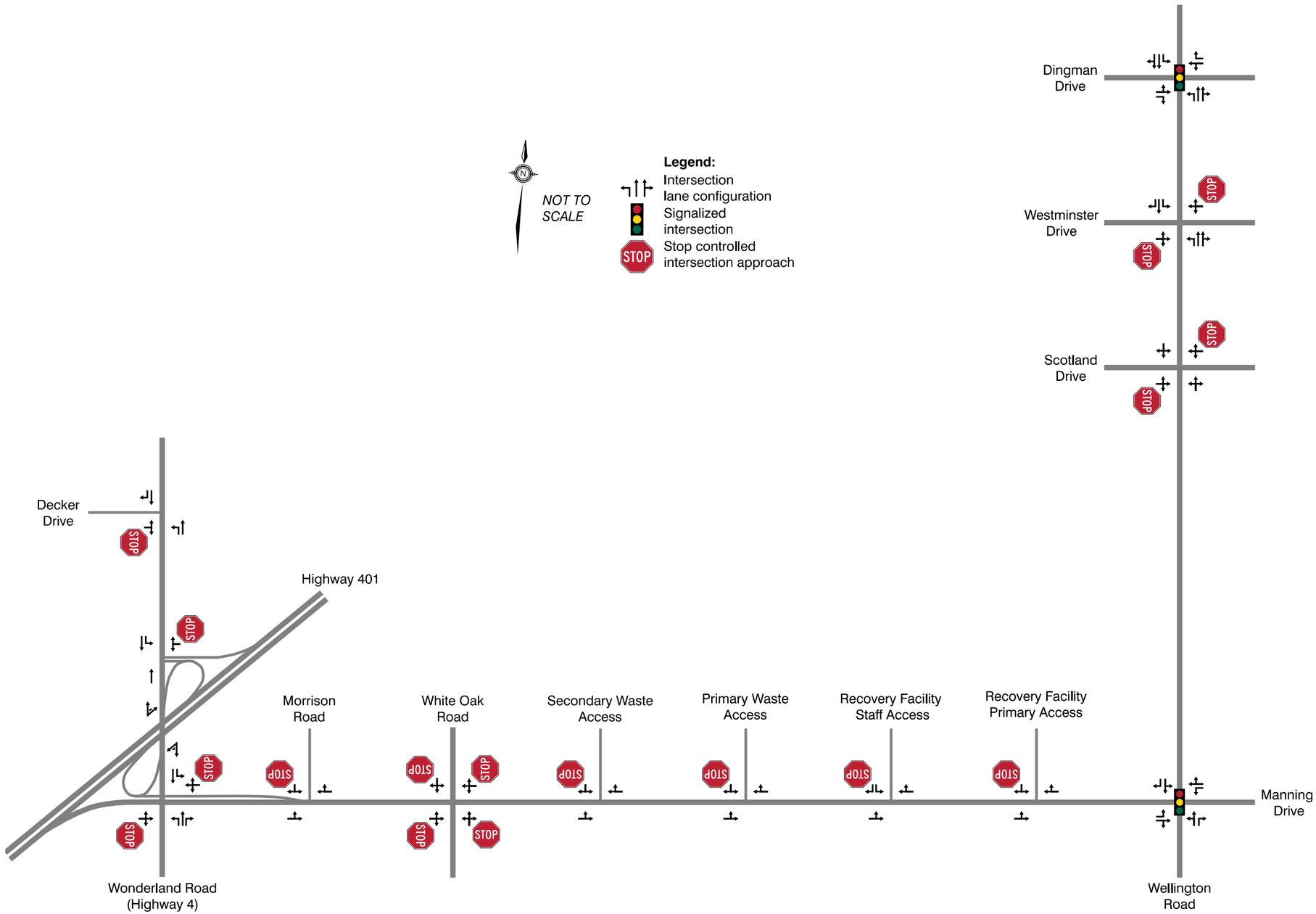

Figure 2: Lane and Traffic Configurations

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2.2 Haul Route

Before 2015, vehicles entering/exiting the W12A Landfill and MRF from the City of London traversed along the Wellington Road haul route only. After the addition of the Highway 401 and Wonderland Road (Highway 4) interchange in 2015, a second haul route was added along Wonderland Road (Highway 4) extending across Highway 401 north to Decker Drive.

The waste management facilities on Manning Drive are accessed via four driveways: two driveways provide access to the MRF and two driveways provide access to the landfill facility. Turning Movement Count (TMC) data at each of the four driveways have been collected and analyzed. In addition, annual vehicle data for the W12A Landfill and MRF have been provided by the City of London. **Table 2** summarizes the 2018 traffic data for the landfill related accesses on Manning Drive.

Table 2: 2018 Data for the W12A Landfill

Type of Vehicle	Tonnage	-	# of Vehicles	-
-	Landfill	% by Vehicle Type	Landfill	% by Vehicle Type
Municipal Waste Collection Vehicles	162,400	42.6%	17,370	24.4%
Private Waste Collection Vehicles	173,700	45.4%	15,800	22.2%
Inbound Operating Supplies[2]	41,700	10.9%	1,950	2.7%
Outbound Materials	500	0.1%	100	0.1%
Small Vehicle - Staff[3]	0	0%	5,800	8.1%
Small Vehicle - Public[4]	2,690	1.0%	30,200	42.4%
Total	**380,990**	**100%**	**71,220**	**100%**

[2] Landfill weigh scale data

[3] Landfill staff trips based on 25 vehicles/day for 165 days (Monday - Friday) and six vehicles/day for 38 days (Saturday) for spring/summer/fall and staff 16 vehicles/day for 85 days (Monday - Friday) and six vehicles/day for 14 days (Saturday) for winter.

[4] Landfill tonnage for small vehicles based on weigh scale data. Landfill public trips based on weigh scale tickets and household special waste vehicle count (12,000).

In 2018, a total of 71,220 vehicles accessed the W12A Landfill. Of that total, approximately 51% were small vehicles and 49% were heavy vehicles. Heavy vehicles were typically a mix of waste collection trucks, dump trucks and tractor-trailers.

2.3 On-site Field Review

On Tuesday, October 17, 2017, an on-site review of the haul routes was undertaken. The on-site review confirmed that the majority of traffic along Manning Drive was heavy vehicles related to the landfill and MRF, although some smaller private vehicles were noted dropping off waste at the landfill. Heavy vehicles were not observed along White Oak Road, and a higher number of heavy vehicles appeared destined to the Wellington Road haul route compared to the more recent Wonderland Road (Highway 4) haul route. It is recognized that the number of heavy vehicles destined to Wonderland Road (Highway 4) compared to Wellington Road may vary depending on where waste and recycling collections are occurring within the City of London on a day-to-day basis. Along Wonderland Road (Highway 4), several farm vehicles were observed, although operations along the corridor were not impacted.

2.4 Study Period

TMC data was collected along the haul routes at nine intersections surrounding the W12A Landfill site and the site driveways to the W12A Landfill and MRF (four total). Traffic volumes were surveyed between the peak periods of 7:00 a.m. and 10:00 a.m. as well as 3:00 p.m. and 6:00 p.m. TMC data are provided in **Appendix A**. **Table 3** summarizes the dates and sources for the TMCs at the Site-vicinity Study Area intersections along the haul routes.

Table 3: Turning Movement Counts (TMC) Collection Summary

Intersection	Date completed	Source
Wonderland Road (Highway 4) Haul Route	-	-
Wonderland Road (Highway 4) and Decker Drive	Thursday, December 5, 2019	Accu-Traffic Inc.
Wonderland Road (Highway 4) and Highway 401 WB Ramps	Thursday, December 5, 2019	Accu-Traffic Inc.
Wonderland Road (Highway 4) and Manning Drive/Highway 401 EB Ramps	Thursday, December 5, 2019	Accu-Traffic Inc.
Manning Drive and Morrison Road	Tuesday, May 9, 2017	City of London
Manning Drive and White Oak Road	Tuesday, October 31, 2017	Horizon Data Services Ltd.
Wellington Road Haul Route	-	-
Wellington Road and Manning Drive	Wednesday, May 10, 2017	City of London
Wellington Road and Scotland Drive	Thursday, December 5, 2019	Accu-Traffic Inc.
Wellington Road and Westminster Drive	Thursday, December 5, 2019	Accu-Traffic Inc.
Wellington Road and Dingman Drive	Wednesday, May 10, 2017	City of London
W12A and MRF Site Accesses to Manning Drive	-	-
Primary Access to Material Recovery Facility (Recycling)	Tuesday, October 31, 2017	Horizon Data Services Ltd.
Staff Access to Material Recovery Facility (Recycling)	Thursday, December 5, 2019	Accu-Traffic Inc.
Primary Manning Drive Access to Landfill (Waste)	Tuesday, October 31, 2017	Horizon Data Services Ltd.
Secondary Manning Drive Access to Landfill (Waste)	Thursday, December 5, 2019	Accu-Traffic Inc.

A summary of the intersection-specific a.m. and p.m. peak hours based on the traffic data collected is provided in **Table 4**.

Table 4: Intersection Morning and Afternoon Peak Hour Periods

Intersection	AM Peak Hour	PM Peak Hour
Wonderland Road (Highway 4) Haul Route	-	-
Wonderland Road (Highway 4) & Decker Drive	7:15 a.m. to 8:15 a.m.	4:30 p.m. to 5:30 p.m.
Wonderland Road (Highway 4) & Highway 401 WB Ramps	7:15 a.m. to 8:15 a.m.	4:30 p.m. to 5:30 p.m.
Wonderland Road (Highway 4) & Manning Drive/Highway 401 EB Ramps	7:15 a.m. to 8:15 a.m.	4:45 p.m. to 5:45 p.m.
Manning Drive & Morrison Road	7:15 a.m. to 8:15 a.m.	5:00 p.m. to 6:00 p.m.
Manning Drive & White Oak Road	7:00 a.m. to 8:00 a.m.	4:00 p.m. to 5:00 p.m.
Wellington Road Haul Route	-	-
Wellington Road & Manning Drive	7:15 a.m. to 8:15 a.m.	4:30 p.m. to 5:30 p.m.
Wellington Road & Scotland Drive	7:15 a.m. to 8:15 a.m.	4:15 p.m. to 5:15 p.m.
Wellington Road & Westminster Drive	7:30 a.m. to 8:30 a.m.	4:15 p.m. to 5:15 p.m.
Wellington Road & Dingman Drive	7:30 a.m. to 8:30 a.m.	4:15 p.m. to 5:15 p.m.
W12A Landfill and MRF Site Accesses to Manning Drive	-	-
Primary Access for Material Recovery Facility (Recycling)	8:00 a.m. to 9:00 a.m.	3:15 p.m. to 4:15 p.m.
Staff Access to Material Recovery Facility (Recycling)	9:00 a.m. to 10:00 a.m.	4:15 p.m. to 5:15 p.m.
Primary Manning Drive Access to Landfill (Waste)	8:00 a.m. to 9:00 a.m.	3:00 p.m. to 4:00 p.m.
Secondary Manning Drive Access to Landfill (Waste) – *Outbound Only*	9:00 a.m. to 10:00 a.m.	3:45 p.m. to 4:45 p.m.

2.5 Existing (2019) Traffic Levels along Haul Routes

2.5.1 Peak Hour TMCs

Existing a.m. and p.m. peak hour turning movement volumes along the designated haul routes within the City of London are shown in **Figure 3**. Based on the hourly, seasonal and yearly differences of the TMCs, some traffic balancing was undertaken. In addition, the traffic data collected in 2017 had their base traffic volumes increased by a 1% annual growth factor to reflect existing (2019) traffic volumes.

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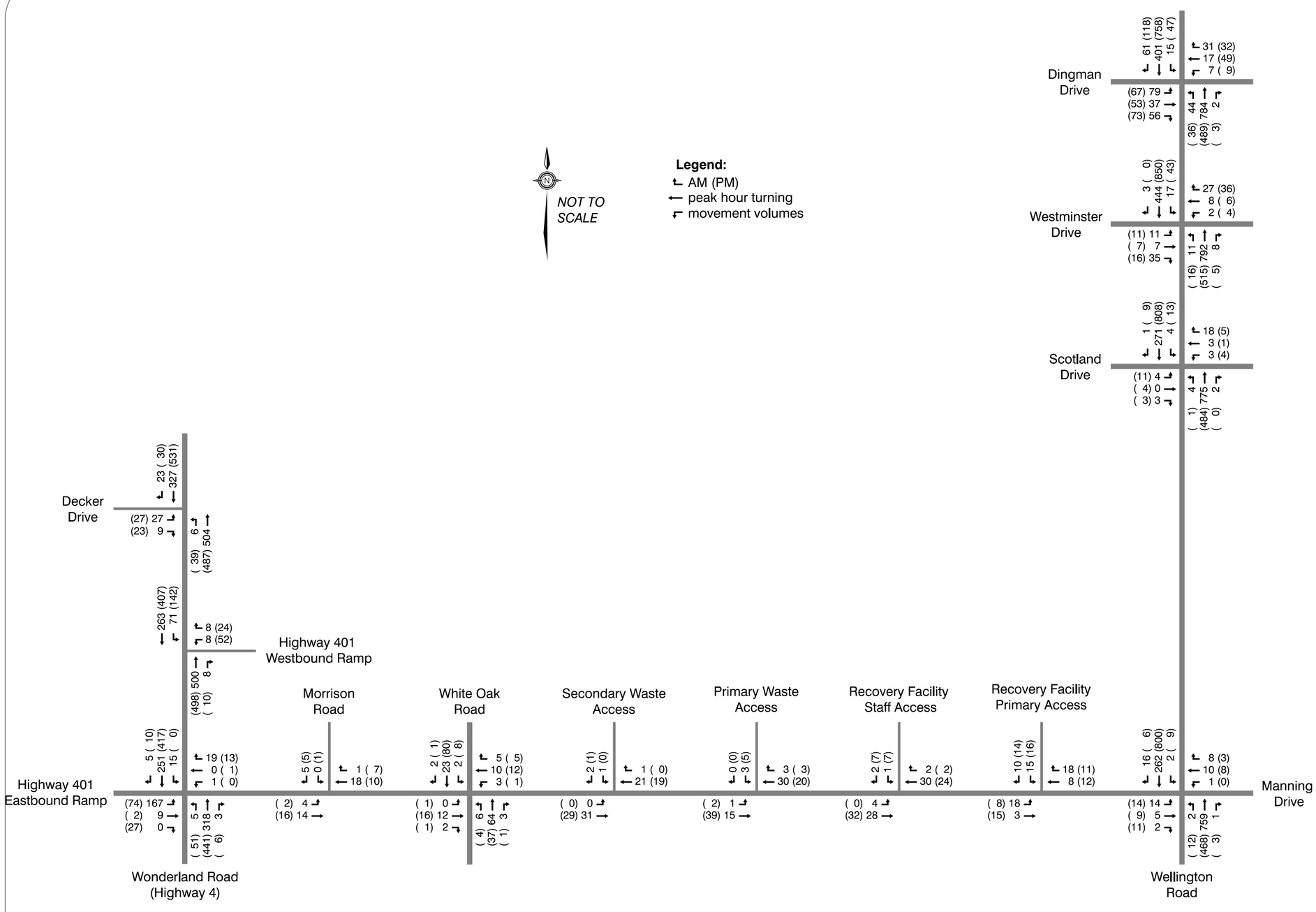

Figure 3: Existing (2019) Traffic Volumes

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2.6 Average Daily Traffic (ADT)

Average daily traffic (ADT) volumes as provided by the City of London mapping system have been summarized in **Table 5**.

Table 5: Average Daily Traffic Volumes

Roadway	Segment	2013 Average Daily Traffic Volume *(nearest 500 vehicles)*
Wonderland Road (Highway 4)	Scotland Drive – Decker Drive	3,000
-	Decker Drive – Manning Drive *(across Highway 401)*	4,000
Manning Drive	Wonderland Road (Highway 4) – White Oak Road	500
-	White Oak Road – Wellington Road	1,000
Wellington Road	Dingman Drive – Westminster Drive	16,000
-	Westminster Drive – Scotland Drive	14,000
-	Scotland Drive – Manning Drive	13,500

The ADT values presented are based on 2013 traffic volumes. At that time the Wonderland Road (Highway 4) and Highway 401 interchange had not yet opened. Given this, it is anticipated that ADT volumes along Wonderland Road (Highway 4) will have increased beyond the values provided in **Table 5**.

2.7 Existing (2019) Traffic Operations

Intersection operational analyses were completed using Trafficware's Synchro software (version 10), which is based on the methodology prescribed within the *Highway Capacity Manual* (HCM). The analyses reflect the existing lane configurations at each intersection and current traffic signal timings obtained from the City of London (provided in **Appendix B**).

At signalized intersections, the volume-to-capacity (v/c) ratio, average vehicular delay, LOS and 95th percentile queue were noted for each individual movement, and the

average delay and level of service were noted for the intersection as a whole. LOS definitions are provided in **Appendix C**.

At unsignalized (stop-controlled) intersections, the v/c ratio, delay, level of service, LOS and 95th percentile queue were noted for any stop-controlled movements and/or left-turning lanes (when present). Synchro analysis worksheets reports are provided in **Appendix D**.

At each intersection, critical movements, if any, were identified. As per the City of London *Transportation Impact Assessment Guidelines*, an individual movement or lane group is considered to be "critical" when its v/c ratio is at or above 0.90 or when its LOS is at LOS E or LOS F.

The existing (2019) intersection operations on the transportation network surrounding the W12A Landfill site are presented in **Table 6**.

Table 6: Existing (2019) Intersection Operations along the Haul Routes

Intersection	Movement	a.m. peak hour -				p.m. peak hour -			
-	-	v/c	LOS	Delay (s/veh)	95th %ile queue (m)	v/c	LOS	Delay (s/veh)	95th %ile queue (m)
Wonderland Road (Hwy 4) and Decker Drive	EB approach NB left	0.12 0.01	C A	17.1 8.1	4 0	0.16 0.04	C A	19.1 8.8	5 1
Wonderland Road (Hwy 4) and WB Highway 401 Ramps	WB approach SB left	0.06 0.08	C A	16.7 9.0	1 2	0.38 0.14	D A	32.9 9.0	14 4
Wonderland Road (Hwy 4) and EB Highway 401 Ramps / Manning Drive	EB approach WB approach NB left SB left	0.63 0.04 0.01 0.02	D B A A	33.4 11.6 8.3 8.5	32 1 0 0	0.48 0.03 0.28 0.00	D B A A	34.3 11.9 8.7 0.0	19 1 1 1
Manning Drive and Morrison Road	SB approach	0.01	A	9.2	0	0.01	A	8.8	0
Manning Drive and White Oak Road	EB approach WB approach NB approach SB approach	0.02 0.02 0.09 0.03	A A A A	7.5 7.3 7.4 7.4	-[5] - - -	0.02 0.02 0.05 0.11	A A A A	7.5 7.2 7.5 7.6	- - - -
-	Overall	—	A	7.4	—	—	A	7.5	—

[5] Synchro analyses for all-way stop conditions did not provide queue lengths for the AWSC intersection at Manning Drive and White Oak Road. During both peak hours, all approaches are operating at LOS A.

Intersection	Movement	a.m. peak hour -				p.m. peak hour -			
-	-	v/c	LOS	Delay (s/veh)	95th %ile queue (m)	v/c	LOS	Delay (s/veh)	95th %ile queue (m)
Manning Drive and W12A Landfill Secondary Access	SB approach	0.00	A	8.6	0	0.00	A	8.4	0
Manning Drive and W12A Landfill Primary Access	SB approach	0.01	A	9.6	0	0.01	A	9.2	0
Manning Drive and MRF Staff/Visitor Access	SB approach	0.00	B	8.7	0	0.02	A	8.7	0
Manning Drive and MRF Primary Access	SB approach	0.04	A	9.5	1	0.05	A	9.4	1
Manning Drive and Wellington Road	EB left	0.09	C	24.6	7	0.06	C	24.9	6
	EB through/right	0.03	C	21.6	4	0.08	B	18.5	7
	WB left[6]	0.00	C	24.0	1	-	-	-	-
	WB through/right	0.10	B	19.5	7	0.04	C	22.0	5
	NB through/left	0.51	A	5.4	89	0.32	A	3.4	39
	NB right	0.00	A	0.0	0	0.00	A	0.0	0
	SB through/left	0.18	A	3.1	22	0.52	A	5.2	89
	SB right	0.02	A	0.06	1	0.01	A	0.0	0
-	Overall	—	A	5.3	—	—	A	5.0	—

[6] Within the available traffic count data, no westbound vehicles on Manning Drive were recorded making the left turn during the p.m. peak hour.

Intersection	Movement	a.m.	peak	hour	-	p.m.	peak	hour	-
-	-	v/c	LOS	Delay (s/veh)	95th %ile queue (m)	v/c	LOS	Delay (s/veh)	95th %ile queue (m)
Wellington Road and Scotland Drive	EB approach	0.04	D	27.2	1	0.14	E	37.2	4
	WB approach	0.09	C	18.9	2	0.05	C	24.0	1
Wellington Road and Westminster Drive	EB approach	0.27	D	26.3	9	0.25	E	37.7	7
	WB approach	0.20	D	25.9	6	0.17	C	20.7	5
	NB left	0.01	A	8.7	0	0.21	A	0.0	0
	SB left	0.03	B	10.4	1	0.04	A	8.6	1
Wellington Road and Dingman Drive	EB through/left	0.65	D	53.8	41	0.64	D	54.2	41
	EB right	0.25	B	17.2	13	0.29	B	17.2	16
	WB through/left	0.12	D	35.1	12	0.26	D	38.9	22
	WB right	0.15	B	12.4	8	0.14	B	12.4	8
	NB left	0.10	A	5.7	8	0.11	A	5.9	7
	NB through/right	0.38	A	6.3	50	0.21	A	4.9	26
	SB left	0.04	A	5.5	3	0.09	A	5.3	8
	SB through/right	0.24	A	5.2	26	0.37	A	5.7	51
-	Overall	—	B	10.5	—	—	B	10.6	—

The two signalized intersections within the Site-vicinity Study Area are found along Wellington Road where it meets Dingman Drive and Manning Drive. The signalized intersections operate at a good to a reasonable LOS (LOS A to LOS D) both overall and for all movements during the a.m. and p.m. peak hours with the existing traffic volumes and signal timing plans. All movements and overall operations for the two signalized intersections during both peak hours are operating well beneath capacity.

The remaining 11 intersections and site accesses within the Site-vicinity Study Area operate under a stop-control condition. These stop-controlled intersections generally operate at an excellent to reasonable LOS (LOS A to LOS D) during both the a.m. and p.m. peak hours, except for the eastbound approaches to Wellington Road on both Scotland Drive and Westminster Drive during the p.m. peak hour (LOS E). Even though they operate with higher vehicle delays, these approaches operate well below capacity (v/c = 0.14 and 0.25, respectively). All measured queues at these unsignalized intersections are less than 35 metres in length, with no movements found to exceed their available storage.

3.0 Assessment of Preferred Alternative

3.1 Description of Preferred Alternative

The landfill expansion consists of a vertical expansion over the existing landfill footprint to provide 13.8 million m^3 of airspace for waste and daily cover. To accommodate ancillary features and provide additional on-site buffer width compared to the existing landfill, the northern boundary of the landfill property will be adjacent to Scotland Drive and a 100-metre buffer width will be provided on the east side of the landfill footprint and some additional area in the southeast corner to tie into the adjacent Material Recovery Facility (MRF) property line. This results in a 106.3-hectare landfill footprint within a 192.4-hectare landfill property, with the highest ridge elevation of waste of 318.43 metres above sea level (masl).

The proposed expansion plan of the W12A Landfill can be seen in **Figure 4**.

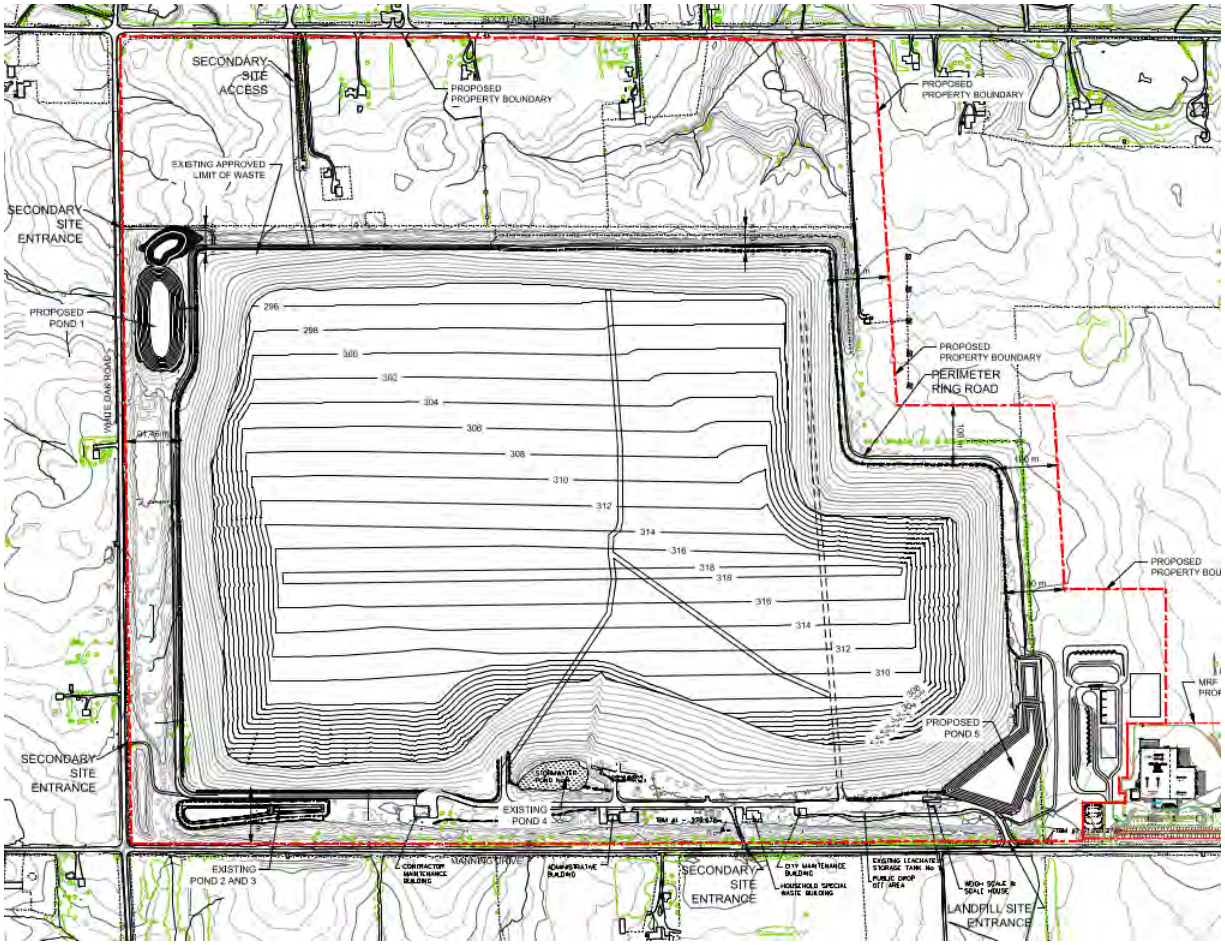

Figure 4: Conceptual Expansion Plan

As part of the proposed expansion for the W12A Landfill, the landfill is planned to remain open until 2048. For analysis purposes, 2048 has been identified as the horizon year. Also, a new ancillary waste facility is proposed between the W12A Landfill and the MRF, with its access coming off the staff access at the MRF. This is anticipated to replace the existing Public Drop-off Depot and Household Special Waste Depot located at the W12A Landfill.

The emergency driveway access to White Oak Road will be retained and a new emergency driveway access to Scotland Drive will be created. Both of these emergency driveway accesses will connect to a new roadway which will surround the entirety of the W12A Landfill expansion limits.

The expanded landfill is proposed to be open from 7:00 a.m. to 5:00 p.m. Monday through Saturday plus one hour before and after for site preparations and placement of daily cover. On Sundays, the landfill will be closed, while on statutory holidays, operations may be required to accommodate hauling contracts.

Also, the landfill property limits were further enlarged in the southeast corner to accommodate a proposed ancillary waste diversion facility within the landfill property. This would be located between the W12A Landfill and the MRF. This would provide a drop-off point for smaller vehicles for materials such as waste, recyclable materials, leaves and brush, and Household Special Waste (HSW). This new ancillary waste diversion facility would replace the current public drop-off depot and HSW found at the W12A landfill.

The potential layout for the proposed ancillary waste diversion facility can be seen in **Figure 5**.

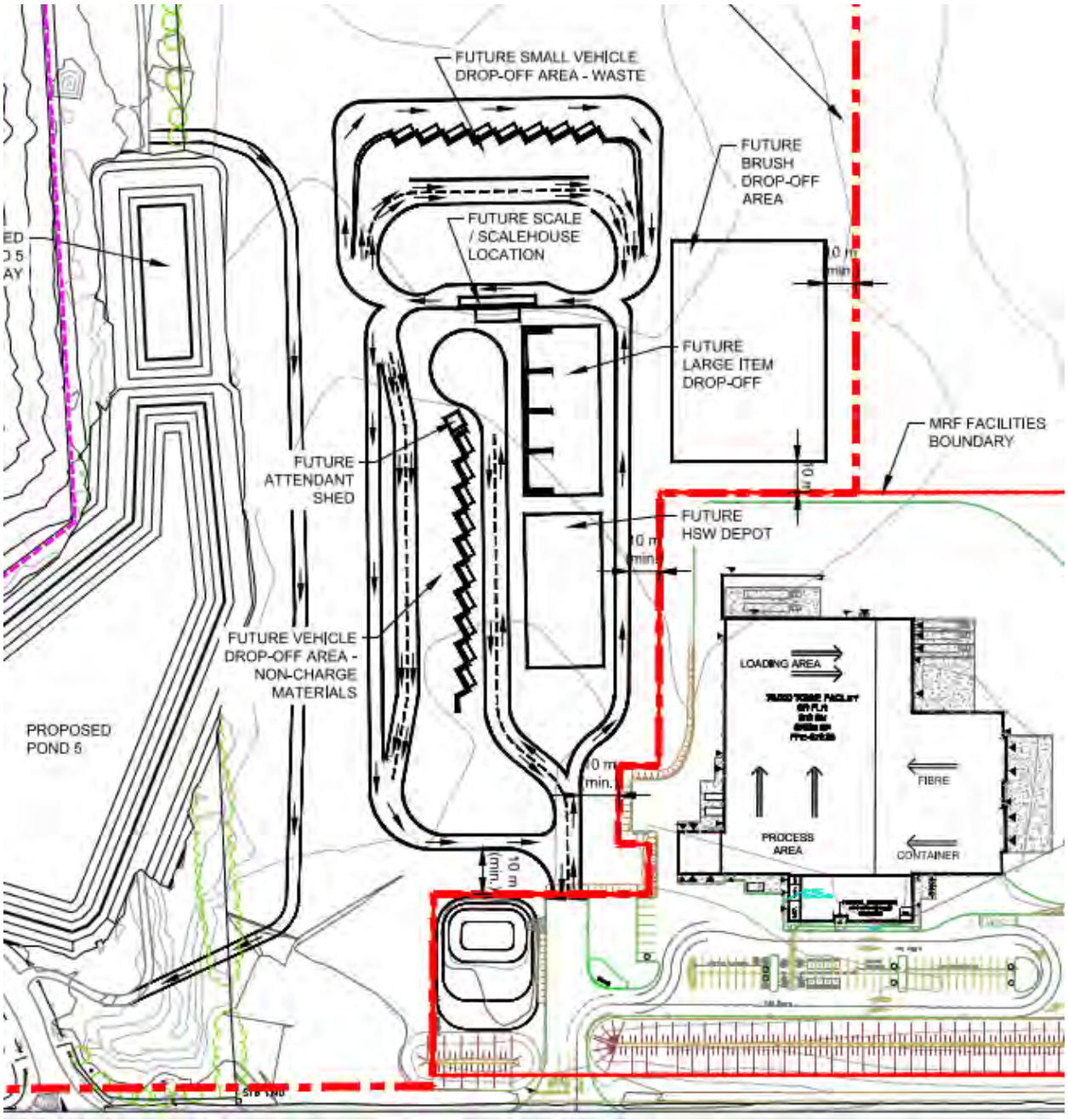

Figure 5: Proposed Ancillary Waste Facility

Changes to the number of vehicles and/or tonnage associated with the W12A Landfill expansion is discussed in **Section 3.2.1**.

3.2 Future (2048) Traffic Levels along Haul Routes

3.2.1 Additional Site Traffic

By the 2048 horizon year, two anticipated changes will increase the number of vehicles and the total amount of waste being delivered to the W12A Landfill.

These include:

- An increase in the total amount of waste generated within the City of London and disposed at the W12A Landfill
- An increase in the total amount of waste due to an increase in the overall service area and coverage

As seen in **Table 2** within **Section 2.2**, the W12A Landfill received 380,990 tonnes of waste and other materials (e.g., road building materials, woodchips for daily cover, etc.) in 2018. The waste and other materials were delivered by 71,220 vehicles.

Table 7 shows the projected waste quantities and the projected number of vehicles associated with the W12A Landfill in 2048. This information has been provided by the City of London.

Table 7: Projected 2048 Data for the W12A Landfill

Type of Vehicle	Tonnage	-	# of Vehicles	-
-	Landfill	% by Vehicle Type	Landfill	% by Vehicle Type
Municipal Waste Collection Vehicles	163,000	34.7%	17,430	20.3%
Private Waste Collection Vehicles	250,900	53.5%	22,820	26.5%
Inbound Operating Supplies	51,400	11.0%	2,400	2.8%
Outbound Materials	600	0.1%	120	0.1%
Small Vehicle - Staff	0	0.0%	6,960	8.1%
Small Vehicle - Public	3,230	0.7%	36,260	42.2%
Total	**469,130**	**100%**	**85,990**	**100%**

By the 2048 horizon year, the waste received at the W12A Landfill from the City of London is forecast to slightly increase by 600 tonnes to 163,000. However, the overall service area is projected to increase, with waste being generated by municipalities within the Regional Service Area and disposed of at the W12A Landfill. As a result, an additional 77,200 tonnes of waste is projected to be received by 2048 by these private waste collection vehicles. In summary, the total amount of waste disposed of annually at the W12A landfill is projected to increase by 23% to 469,130 tonnes of waste by 2048.

Also, the number of vehicles accessing the W12A Landfill is forecast to increase by 21% to 85,990 vehicles per year. To capture these increases within the future analysis, the peak hour traffic volumes at the two W12A Landfill site accesses have been inflated by a growth factor of 21%. Within the future analysis, 60% of these additional vehicle trips have been assigned via the Wellington Road Haul Route, while the remaining 40% of these additional vehicle trips have been assigned via the Wonderland Road (Highway 4) Haul Route.

In addition to the increased traffic generated directly by the W12A Landfill expansion, all traffic volumes as seen within the existing (2019) traffic volumes have been inflated by a common 1.00% annual growth factor. This growth factor has been applied at all intersections, ramp terminals and driveway accesses within the Site-vicinity Study Area.

The future 2048 traffic volumes can be seen in **Figure 6**.

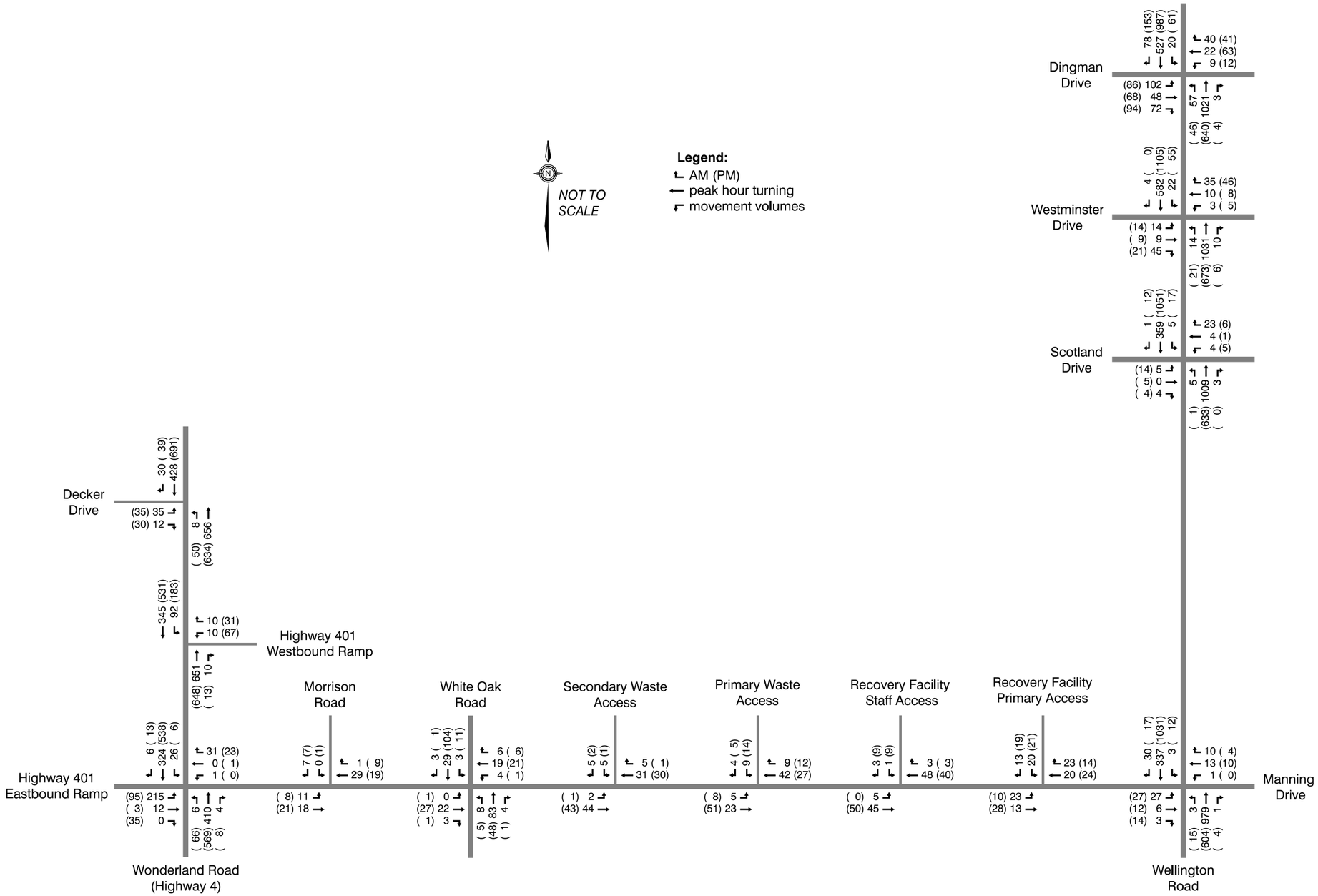

Figure 6: Future (2048) Traffic Volumes

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3.3 Future (2048) Traffic Operations

Taking into account the additional vehicles generated by the W12A Landfill as discussed in **Section 3.2.1,** as well as applying the projected 1.0% annual growth rate across the Site-Vicinity Study Area, operational analyses along the haul routes were assessed in the same manner as the existing traffic operations and assessment as seen in **Section 2.7**.

The future (2048) intersection operations on the transportation network within the Site-Vicinity Study Area are presented in **Table 8**.

Table 8: Future (2048) Intersection Operations along the Haul Routes

Intersection	Movement	a.m. peak hour -				p.m. peak hour -			
-	-	v/c	LOS	Delay (s/veh)	95th %ile queue (m)	v/c	LOS	Delay (s/veh)	95th %ile queue (m)
Wonderland Road (Hwy 4) and Decker Drive	EB approach	0.22	C	24.8	7	0.32	D	31.2	11
	NB left	0.01	A	8.4	0	0.06	A	9.5	2
Wonderland Road (Hwy 4) and WB Highway 401 Ramps	WB approach	0.10	C	23.6	3	0.85	F	122	43
	SB left	0.13	A	9.9	4	0.21	A	9.9	6
Wonderland Road (Hwy 4) and EB Highway 401 Ramps / Manning Drive	EB approach	1.21	F	171	105	1.05	F	156	62
	WB approach	0.07	B	12.9	2	0.06	B	13.4	2
	NB left	0.01	A	8.6	0	0.08	A	9.3	2
	SB left	0.03	A	8.9	1	0.01	A	9.7	0
Manning Drive and Morrison Road	SB approach	0.01	A	9.3	0	0.02	A	8.9	0
Manning Drive and White Oak Road	EB approach	0.03	A	7.7	-[7]	0.04	A	7.7	-
	WB approach	0.04	A	7.5	-	0.04	A	7.4	-
	NB approach	0.12	A	7.6	-	0.07	A	7.7	-
	SB approach	0.05	A	7.6	-	0.15	A	7.8	-
-	Overall	—	A	7.6	—	—	A	7.7	—

[7] Synchro analyses for all-way stop conditions did not provide queue lengths for the AWSC intersection at Manning Drive and White Oak Road. During both peak hours, all approaches are forecast to operate at LOS A.

Intersection	Movement	a.m. peak hour	-	p.m. peak hour	-
-	-	v/c	LOS	Delay (s/veh)	95th %ile queue (m)	v/c	LOS	Delay (s/veh)	95th %ile queue (m)
Manning Drive and W12A Landfill Secondary Access	SB approach	0.01	A	8.9	0	0.00	A	8.6	0
Manning Drive and W12A Landfill Primary Access	SB approach	0.01	A	9.8	0	0.03	A	9.5	0
Manning Drive and MRF Staff/Visitor Access	SB approach	0.00	A	8.9	0	0.01	A	8.9	0
Manning Drive and MRF Primary Access	SB approach	0.05	A	9.9	1	0.06	A	9.7	1
Manning Drive and Wellington Road	EB left	0.20	C	31.3	11	0.25	D	36.6	11
	EB through/right	0.05	C	24.4	5	0.14	C	21.8	8
	WB left[8]	0.00	C	27.0	1	-	-	-	-
	WB through/right	0.15	C	22.6	8	0.08	C	26.8	6
	NB through/left	0.65	A	8.3	209	0.43	A	4.9	62
	NB right	0.00	A	0.0	0	0.00	A	0.0	0
	SB through/left	0.24	A	3.2	32	0.71	B	10.1	212
	SB right	0.04	A	1.2	2	0.02	A	0.5	0.7
-	Overall	—	A	7.7	—	—	A	8.8	—

[8] Within the available traffic count data, no westbound vehicles on Manning Drive were recorded making the left turn during the p.m. peak hour.

Intersection	Movement	a.m.	peak	hour	-	p.m.	peak	hour	-
-	-	v/c	LOS	Delay (s/veh)	95th %ile queue (m)	v/c	LOS	Delay (s/veh)	95th %ile queue (m)
Wellington Road and Scotland Drive	EB approach	0.10	E	49.2	3	0.36	F	86.9	11
	WB approach	0.18	D	28.7	5	0.11	E	43.3	3
Wellington Road and Westminster Drive	EB approach	0.67	F	79.4	28	0.63	F	116	22
	WB approach	0.65	F	101	25	0.44	F	51	16
	NB left	0.02	A	9.3	1	0.04	B	11	1
	SB left	0.05	B	12.1	1	0.06	A	9	2
Wellington Road and Dingman Drive	EB through/left	0.70	D	52.5	49	0.69	D	53.5	50
	EB right	0.28	B	18.9	17	0.32	B	19.4	21
	WB through/left	0.12	C	32.3	13	0.28	D	36.6	26
	WB right	0.16	B	11.4	9	0.15	B	10.7	9
	NB left	0.16	A	7.8	12	0.22	A	9.6	11
	NB through/right	0.51	A	9.0	83	0.29	A	6.5	41
	SB left	0.09	A	7.7	5	0.14	A	7.0	11
	SB through/right	0.33	A	7.0	42	0.51	A	8.2	84
-	Overall	—	B	12.4	—	—	B	12.3	—

The two signalized intersections, found along Wellington Road at both Dingman Drive and Manning Drive, continue to operate with minor increases reported to the v/c ratio, delays, and 95th percentile queues. All movements at these two intersections, as well as the overall intersection performance, are forecast to remain at a good to reasonable LOS (LOS A to LOS D). Critical movements are not expected to occur by the 2048 horizon year at either of these intersections.

The remaining intersections and site accesses within the Site-vicinity Study Area operate under a stop-control condition. Compared to the existing conditions analyses, most stop-controlled intersections are not anticipated to see any significant changes to operations with a few notable exceptions:

- Wonderland Road (Highway 4) at both ramp terminals from Highway 401:
  - The westbound approach at Wonderland Road and the westbound Highway 401 Ramp Terminal is forecast to operate at LOS F in the PM peak hour
  - The eastbound approach at the Wonderland Road and the eastbound Highway 401 Ramp Terminal/Manning Drive intersection is forecast to operate at a critical level during both the AM and PM peak hours (v/c = 1.21 and LOS F in the a.m. peak hour, and v/c = 1.05 and LOS F in the p.m. peak hour)
- Wellington Road at Scotland Drive:
  - During both the a.m. and p.m. peak hours, the eastbound and westbound approaches are forecast to operate up to LOS F. However, all approaches are forecast to remain well below capacity, with a maximum v/c ratio of 0.36
- Wellington Road at Westminster Drive
  - During both the a.m. and p.m. peak hours, the eastbound and westbound approaches are forecast to operate at LOS F. All approaches are forecast to remain below capacity, with a maximum v/c ratio of 0.67.

Monitoring and/or mitigation measures within the Site-Vicinity Study Area are discussed in **Section 4.0**.

3.4 Highway 401 Emergency Detour Route (ETR) Assessment

Since the Wonderland Road (Highway 4) and Highway 401 interchange has been completed, the emergency detour route (EDR) for Highway 401 between the Wonderland Road (Highway 4) and Wellington Road interchanges has been signed along the W12A Landfill haul route (via Manning Drive and Wellington Road). Between the Wonderland Road (Highway 4) and Wellington Road interchanges, Highway 402

connects to Highway 401 at a partial interchange. Wonderland Road (Highway 4) also meets Highway 402 at a full-movement interchange to the north of the Site-vicinity Study Area.

The Highway 402 EDR is located to the north of the corridor, via Wonderland Road (Highway 4), Exeter Road and Wellington Road.

Figure 7 shows the locations of the Highway 401 and Highway 402 corridors and interchanges, the associated EDRs and the W12A landfill haul routes.

Figure 7: Emergency Detour Routes and Highway Interchanges

Should an incident occur on Highway 401 west of the Highway 402 interchange compared to the east, there would be different traffic patterns generated by the

associated closures for both eastbound and westbound directions. In both scenarios, it has been assumed that Highway 401 would be closed in both directions and all mainline traffic would need to be detoured. Both situations are described below.

Traffic volume data along Highway 401 and Highway 402 through the London region was provided by the Ministry of Transportation, Ontario (MTO).

Table 9 provides the AADT along the various segments of Highway 401 and Highway 402 through the London region. Note the original 2016 values have been inflated by a 1.0% annual growth factor to better reflect future conditions in the 2048 horizon year. The design hourly volume (DHV) is based on the percentage of traffic along the corridor found during the busiest hour of the day and is provided as a percentage of the AADT. The MTO data and DHV percentages can be found in **Appendix E**.

Table 9: Daily Traffic Volumes on Highway 401 and Highway 402

Highway #	Segment Start	Segment End	2016 AADT	2048 AADT	Traffic Pattern Type	2048 DHV (%)
Highway 401	Colonel Talbot Road (Highway 4 SOUTH)	Wonderland Road (Highway 4 NORTH)	28,500	39,200	Urban Commuter	10.2
Highway 401	Wonderland Road (Highway 4 NORTH)	Highway 402	28,500[9]	39,200	Urban Commuter	10.2
Highway 401	Highway 402	Wellington Road	58,200	80,000	Urban Commuter	10.2
Highway 401	Wellington Road	Highbury Avenue	62,600	86,100	Intermediate Commuter	10.0
Highway 402	Colonel Talbot Road	Wonderland Road (Highway 4)	24,700	34,000	Intermediate Commuter	10.0
Highway 402	Wonderland Road (Highway 4)	Highway 401	28,500	39,200	Intermediate Commuter	10.0

Where Highway 402 splits from Highway 401, slightly more traffic (54%) is using Highway 401 compared to Highway 402 when west of this partial interchange.

In 2048, should Highway 401 be closed between Highway 402 and Wellington Road for a full 24-hour period, approximately 80,000 vehicles would end up being diverted off Highway 401 (and Highway 402). However, should only Highway 401 be closed between Wonderland Road (Highway 4) and Highway 402, then only 39,200 vehicles would be diverted off Highway 401, while Highway 402 would not be impacted.

[9] MTO AADT data for 2016 was collected before the Wonderland Road (Highway 4) interchange was collected in the field. As a result, there is no change in traffic volumes between the east and west legs of this interchange.

Based on the DHV, and assuming there is a 50/50 split for directional volume during the design hour, the maximum hourly volume can be seen in **Table 10**.

Table 10: 2048 Design Hourly Volume

Highway #	Segment Start	Segment End	2048 AADT	2048 DHV (%)	DHV	Directional DHV
Highway 401	Colonel Talbot Road (Highway 4 SOUTH)	Wonderland Road (Highway 4 NORTH)	39,200	10.2	3,998	1,999
Highway 401	Wonderland Road (Highway 4 NORTH)	Highway 402	39,200	10.2	3,998	1,999
Highway 401	Highway 402	Wellington Road	80,000	10.2	8,160	4,080
Highway 401	Wellington Road	Highbury Avenue	86,100	10.0	8,610	4,305
Highway 402	Colonel Talbot Road	Wonderland Road (Highway 4)	34,000	10.0	3,400	1,700
Highway 402	Wonderland Road (Highway 4)	Highway 401	39,200	10.0	3,920	1,960

3.4.1 Scenario #1 – Full Closure of Highway 401 east of the Highway 402 Interchange

A full closure of Highway 401 between the partial interchange of Highway 402 and Wellington Road would impact traffic volumes on Highway 401 and Highway 402.

Between Wellington Road and Wonderland Road (Highway 4), Highway 402 runs generally in an east-west manner while Highway 401 runs in a northeast-southwest manner. The general road network surrounding these corridors runs in an east-west and north-south arrangement.

Should there be a closure on this portion of Highway 401, eastbound traffic on both Highway 401 and Highway 402 would be diverted at Wonderland Road (Highway 4), while westbound traffic on Highway 401, including traffic destined to Highway 402, would be diverted at Wellington Road. Over 24 hours, up to 80,000 vehicles may be impacted and during the busiest hour, approximately 4,100 vehicles per hour per direction may be impacted.

The Highway 402 EDR between Highway 401 and Wonderland Road (Highway 4) is signed to the north of the Highway 402 corridor via Wonderland Road (Highway 4), Exeter Road and Wellington Road to Highway 401.

The Highway 401 EDR between Wellington Road and Wonderland Road (Highway 4) is signed to the south of the Highway 401 corridor via Manning Drive and Wellington Road.

It is anticipated that the majority of traffic associated with the closure along Highway 402 would rely on Exeter Road between Wonderland Road (Highway 4) and Wellington Road and would not travel or utilize any parts of the W12A Landfill haul routes.

The majority of eastbound traffic associated with Highway 401 would rely on the signed EDR and would follow both Manning Drive and Wellington Road. However, westbound traffic may be split and would rely on Exeter Road and Wonderland Road (Highway 4) to the north of Highway 401, or the signed EDR route along Wellington Road and Manning Drive to the south of Highway 401. This would especially be the case as westbound queues on Highway 401 from Wellington Road would likely extend back to the Exeter Road off-ramp from westbound Highway 401.

Also, given the nature of drivers' habits and/or reliance on tools such as GPS and mobile apps, a portion of traffic will travel along completely different routes, departing and entering the Highway 401 corridor at points well in advance and/or after the actual detour.

3.4.2 Scenario #2 – Full Closure of Highway 401 west of the Highway 402 Interchange

A full closure of Highway 401 between the partial interchange of Highway 402 and Wonderland Road (Highway 4) would have an impact on traffic volumes for both Highway 401 and Highway 402.

However, in this case, Highway 401 would remain open between Highway 402 and Wellington Road and traffic on Highway 401 would be diverted onto Highway 402, particularly in the westbound direction.

It is anticipated there would be relatively different travel patterns for eastbound and westbound traffic on Highway 401 with this closure. Eastbound traffic would likely follow two routes from the interchange of Highway 401 and Wonderland Road (Highway 4):

- Eastbound on Manning Drive and northbound on Wellington Road to eastbound Highway 401 (as per the EDR)
- Northbound on Wonderland Road (Highway 4) and eastbound on Highway 402 which links back to eastbound Highway 401.

Westbound traffic would primarily be diverted along Highway 402 to Wonderland Road (Highway 4) or Colonel Talbot Road, where it would travel southbound to connect back to Highway 401.

Similar to Scenario #1 outlined in **Section 3.4.1**, given the nature of drivers' habits and/or reliance on tools such as GPS and mobile apps, a portion of diverted traffic will travel along completely different routes, departing and entering the Highway 401 corridor at points well in advance and/or after the actual EDR.

3.5 Temporary Closure of Manning Drive

Presently, both the W12A Landfill and MRF have access to/from Manning Drive. The haul routes travel to both the east and west of the sites. As a result, if Manning Drive is closed to either the west or east of the site accesses, alternative access via the other haul route is feasible.

However, if Manning Drive between White Oak Road and Wellington Road is fully closed, alternate emergency access to White Oak Road at the southeast quadrant of the W12A Landfill is currently present. No alternate access is available for the MRF.

As per the conceptual expansion plan seen in **Figure 4**, there will be a continuous road corridor that encircles the entire landfill. The emergency access to White Oak Road found towards the southeast quadrant of the landfill site will be retained. Separately, a new emergency access road is planned to link directly to Scotland Drive to the north of the W12A Landfill.

As a result, should Manning Drive be closed in front of the W12A Landfill, alternate driveway access to both White Oak Road and Scotland Drive would be readily available.

As per the City of London truck route bylaw, both Scotland Drive and White Oak Road are classified as 24-hour truck routes, so heavy vehicles associated with the W12A Landfill and MRF would be able to use White Oak Road or Scotland Drive as an

alternate access to the W12A Landfill should access to Manning Drive be blocked on an "as and when needed" basis.

It is recognized that a full closure of Manning Drive between White Oak Road and Wellington Road would occur in extremely limited frequencies. However, the retention of these secondary accesses would allow trucks to use either White Oak Road or Scotland Road to access the haul routes on Wonderland Road (Highway 4) or Wellington Road as and when necessary.

4.0 Mitigation Measures & Monitoring

Within the Site-Vicinity Study Area, several stop-controlled approaches are forecast to operate at LOS E or LOS F under future (2048) conditions, with several of these stop-controlled approaches forecast to near or exceed the available capacity. These include both ramp terminals at the Highway 401 and Wonderland Road (Highway 4) interchange, as well as the two unsignalized intersections on Wellington Road at Scotland Drive and Westminster Drive, respectively.

4.1 Wellington Road at Scotland Drive and at Westminster Drive

Given the two intersections along Wellington Road have stop-controlled approaches that are forecast to operate at LOS F but are well below capacity, no additional mitigation analysis has been undertaken. In the future, the City of London may need to collect new TMC data at these intersections to determine if traffic signals are warranted. Given the nature of the Wellington Road haul route, traffic signals at these two intersections would not benefit or assist with the operation of any vehicles associated with the W12A Landfill or MRF as they are currently proceeding straight through these two intersections on Wellington Road in a free-flow manner.

4.2 Highway 401 and Wonderland Road (Highway 4) Ramp Terminals

Under future (2048) conditions, the two ramp terminals at the Highway 401 and Wonderland Road (Highway 4) are forecast to operate at LOS F. The eastbound Highway 401 Ramp Terminal is forecast to operate at or above capacity during both peak periods, while the westbound Highway 401 Ramp Terminal is forecast to approach capacity during the PM peak hour.

At this interchange, additional analysis was conducted to determine how these two ramp terminal intersections would operate with traffic signals under the current geometric arrangement.

At these two potential signalized intersections, the following items were coded into the Synchro analyses and reporting:

- Signal timing parameters for the yellow and all-red intervals were considered as per the MTO's *Traffic Signal Operating & Timing Policy #2010-02*
- No pedestrian phases or signals would be present given the rural context of the interchange

- The two intersections would operate with 100-second cycle lengths in a fully-actuated manner, with the signals remaining green on Wonderland Road (Highway 4) until a vehicle would approach from the off-ramps or Manning Drive
- Protected/permissive left-turn signals and phases were included for all left-turn movements on Wonderland Road (Highway 4) to both the Highway 401 on-ramps as well as to Manning Drive
- Separate split phasing for the eastbound (off-ramp) and westbound (Manning Drive) approaches at the intersection of Wonderland Road (Highway 4) and the Eastbound Ramp Terminal. This split phasing was introduced for the following three reasons:
    - Both the eastbound and westbound approaches operate with a single lane
    - There are notable differences in the existing and projected traffic volumes for the east leg (Manning Drive) when compared to the west leg (eastbound off-ramp); as a result, some cycles can likely skip over the signal phase for this leg (westbound Manning Drive)
    - Given the present layout and geometry of the intersection, the eastbound and westbound left-turn movements would physically conflict with one another if permitted simultaneously.

Table 11 summarizes the projected operations of these two intersections at the Highway 401 and Wonderland Road (Highway 4) interchange when operating under traffic signal control.

Table 11: Mitigated Intersection Operations (2048) – Highway 401 & Wonderland Road (Highway 4) Interchange

Intersection	Movement	a.m. peak hour -				p.m. peak hour -			
-	-	v/c	LOS	Delay (s/veh)	95th %ile queue (m)	v/c	LOS	Delay (s/veh)	95th %ile queue (m)
Wonderland Road (Highway 4) and WB Highway 401 Ramps	WB approach	0.06	C	21.2	8	0.31	C	26.5	28
	NB thru	0.64	B	12.5	116	0.77	C	21.2	122
	NB right	0.01	A	0.0	0	0.01	A	0.0	0
	SB left	0.22	A	2.8	6	0.41	A	5.9	13
	SB thru	0.25	A	2.7	27	0.42	A	6.1	50
-	Overall	-	A	8.8	-	-	B	14.0	-
Wonderland Road (Highway 4) and EB Highway 401 Ramps / Manning Drive	EB approach	0.59	C	34.3	70	0.44	C	31.1	39
	WB approach	0.12	A	0.8	0	0.10	B	16.6	8
	NB left	0.02	B	13.3	3	0.23	B	10.4	13
	NB thru	0.65	C	26.7	114	0.62	B	18.9	165
	NB right	0.01	A	0.0	0	0.01	A	0.0	0
	SB left	0.10	B	14.0	8	0.02	A	9.5	2
	SB thru	0.49	C	21.1	86	0.72	C	25.6	153
	SB right	0.00	A	0.0	0	0.01	A	0.0	0
-	Overall	-	C	25.1	-	-	C	22.0	-

With both intersections at the Highway 401 and Wonderland Road (Highway 4) interchange signalized, the northerly intersection is forecast to operate at LOS A during the a.m. peak hour and at LOS B during the p.m. peak hour. The southerly intersection is forecast to operate at an overall LOS C during both peak hours. At both intersections, all movements would be forecast to operate at LOS C or better, with minimal delay or interruptions for any approach, including the ramp terminals from Highway 401.

In the future, the MTO or City of London may need to collect new TMC data at this interchange to determine if traffic signals would be warranted by the 2048 horizon year. Traffic signals, if warranted, would be due to the projected increase of background traffic volume along the Highway 401 and/or Wonderland Road (Highway 4) corridors, and not be due to traffic associated with the W12A Landfill and/or MRF.

5.0 References

Proposed New Land Uses Adjacent to W12A Landfill: Traffic Impact Assessment, IBI Group, November 2009

Environmental Screening Process W12A Landfill Service Area Amendment Draft Background Document, City of London, August 2015

Wonderland Road South Municipal Class Environmental Assessment: Environmental Study Report, MMM Group, August 2015

Open Data Catalogue (*https://www.london.ca/city-hall/open-data/Pages/Open-Data-Data-Catalogue.aspx*), City of London, October 2017.

Appendix A

Traffic Volume Data

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Traffic Monitoring & Data Analysis

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Morning Peak Diagram

Specified Period
From: 7:00:00
To: 10:00:00

One Hour Peak
From: 7:15:00
To: 8:15:00

Municipality: London
Site #: 1919400007
Intersection: Wonderland Rd & Decker Dr
TFR File #: 1
Count date: 5-Dec-19

Weather conditions:

Person counted:
Person prepared:
Person checked:

** Non-Signalized Intersection **

Major Road: Wonderland Rd runs N/S

North Leg Total: 881
North Entering: 350
North Peds: 0
Peds Cross: ⋈

Buses	0	1	1
Trucks	0	10	10
Cars	23	316	339
Totals	23	327	

Buses	0
Trucks	14
Cars	517
Totals	531

Wonderland Rd

Buses	Trucks	Cars	Totals
0	0	29	29

Decker Dr

N
W E
S

Buses	Trucks	Cars	Totals
0	0	27	27
1	0	8	9
1	0	35	

Wonderland Rd

Peds Cross: ⧖
West Peds: 0
West Entering: 36
West Leg Total: 65

Cars	324		
Trucks	10		
Buses	2		
Totals	336		

Cars	6	490	496
Trucks	0	14	14
Buses	0	0	0
Totals	6	504	

Peds Cross: ⋈
South Peds: 0
South Entering: 510
South Leg Total: 846

Comments

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Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 16:30:00
To: 17:30:00

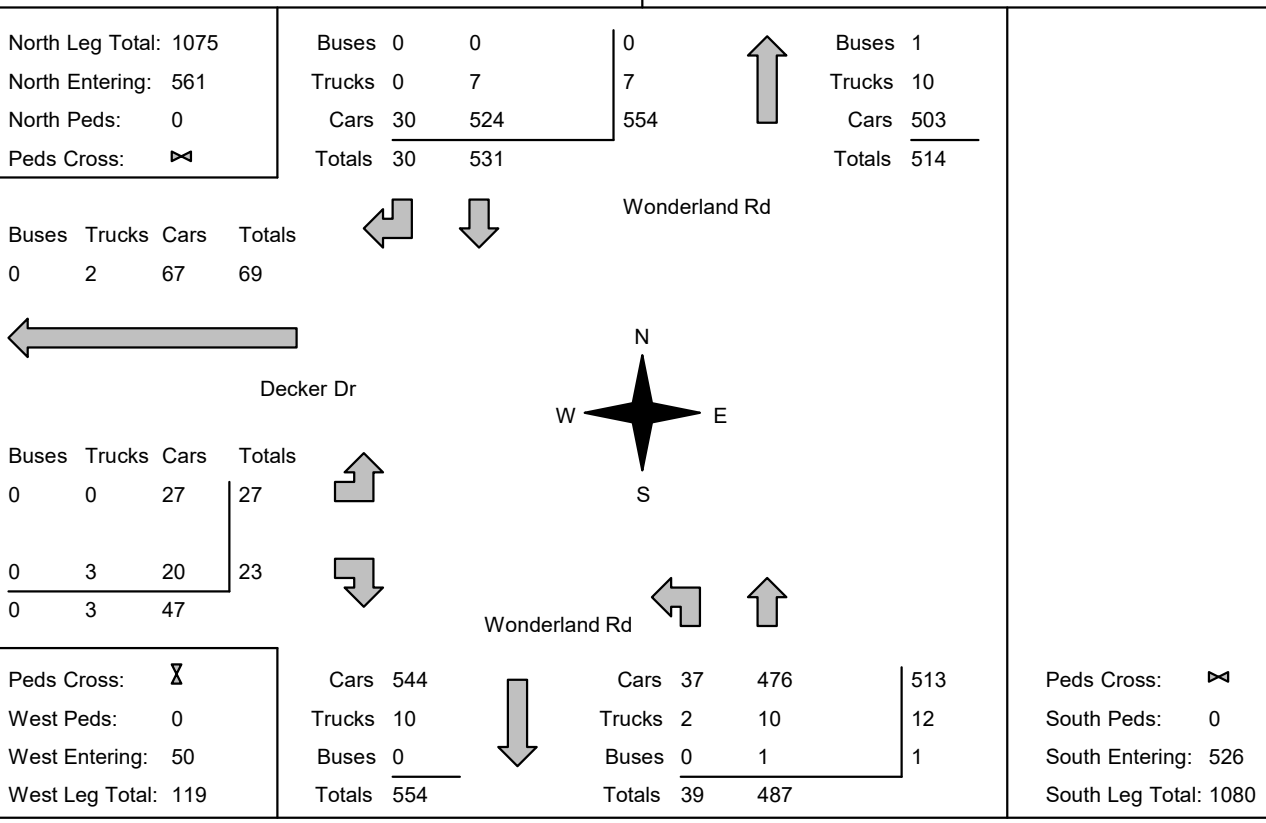
Municipality: London
Site #: 1919400007
Intersection: Wonderland Rd & Decker Dr
TFR File #: 1
Count date: 5-Dec-19

Weather conditions:

Person counted:
Person prepared:
Person checked:

** Non-Signalized Intersection **

Major Road: Wonderland Rd runs N/S



Comments

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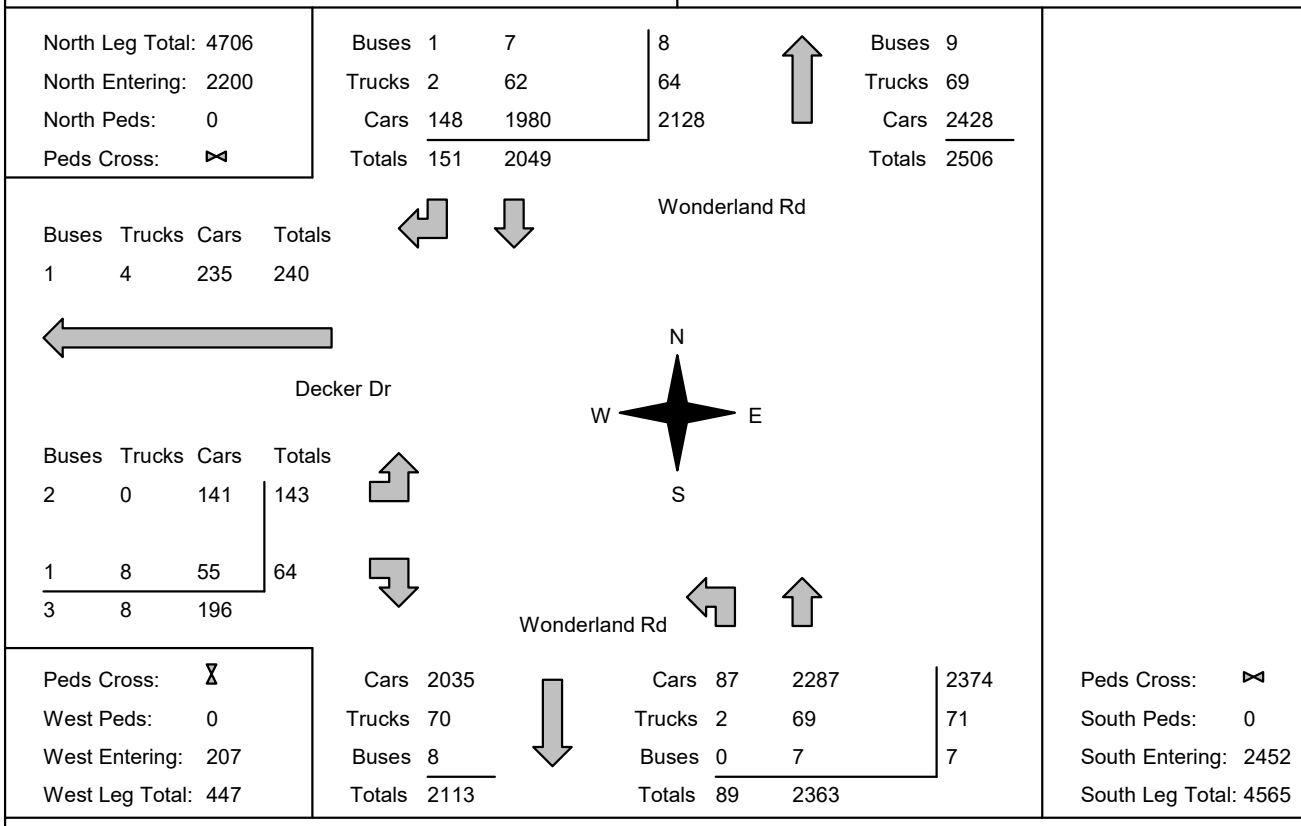
Total Count Diagram

Municipality: London Site #: 1919400007 Intersection: Wonderland Rd & Decker Dr TFR File #: 1 Count date: 5-Dec-19	Weather conditions: Person counted: Person prepared: Person checked:
** Non-Signalized Intersection **	Major Road: Wonderland Rd runs N/S



Comments

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Traffic Count Summary

Intersection: Wonderland Rd & Decker Dr | Count Date: 5-Dec-19 | Municipality: London

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Buses				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0
8:00:00	0	287	20	307	0
9:00:00	0	275	15	290	0
10:00:00	0	205	18	223	0
15:00:00	0	0	0	0	0
16:00:00	0	352	30	382	0
17:00:00	0	433	47	480	0
18:00:00	0	497	21	518	0
Totals:	0	2049	151	2200	0

North/South Total Approaches: 4652

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Buses				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0
8:00:00	6	474	0	480	0
9:00:00	7	378	0	385	0
10:00:00	6	299	0	305	0
15:00:00	0	0	0	0	0
16:00:00	7	326	0	333	0
17:00:00	40	403	0	443	0
18:00:00	23	483	0	506	0
S Totals:	89	2363	0	2452	0

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Buses				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0
8:00:00	0	0	0	0	0
9:00:00	0	0	0	0	0
10:00:00	0	0	0	0	0
15:00:00	0	0	0	0	0
16:00:00	0	0	0	0	0
17:00:00	0	0	0	0	0
18:00:00	0	0	0	0	0
Totals:	0	0	0	0	0

East/West Total Approaches: 207

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Buses				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0
8:00:00	26	0	5	31	0
9:00:00	21	0	8	29	0
10:00:00	26	0	8	34	0
15:00:00	0	0	0	0	0
16:00:00	24	0	8	32	0
17:00:00	27	0	11	38	0
18:00:00	19	0	24	43	0
W Totals:	143	0	64	207	0

Calculated Values for Traffic Crossing Major Street

Hours Ending:	7:00	8:00	9:00	10:00	15:00	16:00	17:00	18:00
Crossing Values:	0	26	21	26	0	24	27	19

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Count Date: 5-Dec-19 Site #: 1919400007

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Buses - North Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	38	38	2	2	0	0	2	2	0	0	0	0	0	0	0	0	0	0
7:30:00	0	0	99	61	7	5	0	0	3	1	0	0	0	0	0	0	0	0	0	0
7:45:00	0	0	195	96	10	3	0	0	4	1	0	0	0	0	0	0	0	0	0	0
8:00:00	0	0	283	88	20	10	0	0	4	0	0	0	0	0	0	0	0	0	0	0
8:15:00	0	0	354	71	25	5	0	0	12	8	0	0	0	0	1	1	0	0	0	0
8:30:00	0	0	424	70	29	4	0	0	14	2	0	0	0	0	1	0	1	1	0	0
8:45:00	0	0	481	57	31	2	0	0	19	5	0	0	0	0	1	0	1	0	0	0
9:00:00	0	0	539	58	34	3	0	0	22	3	0	0	0	0	1	0	1	0	0	0
9:15:00	0	0	582	43	37	3	0	0	25	3	0	0	0	0	1	0	1	0	0	0
9:30:00	0	0	635	53	44	7	0	0	28	3	0	0	0	0	3	2	1	0	0	0
9:45:00	0	0	672	37	47	3	0	0	32	4	1	1	0	0	3	0	1	0	0	0
10:00:00	0	0	726	54	51	4	0	0	38	6	1	0	0	0	3	0	1	0	0	0
10:15:00	0	0	726	0	51	0	0	0	38	0	1	0	0	0	3	0	1	0	0	0
15:00:00	0	0	726	0	51	0	0	0	38	0	1	0	0	0	3	0	1	0	0	0
15:15:00	0	0	819	93	56	5	0	0	39	1	1	0	0	0	5	2	1	0	0	0
15:30:00	0	0	905	86	65	9	0	0	41	2	1	0	0	0	6	1	1	0	0	0
15:45:00	0	0	986	81	72	7	0	0	42	1	1	0	0	0	6	0	1	0	0	0
16:00:00	0	0	1066	80	81	9	0	0	47	5	1	0	0	0	6	0	1	0	0	0
16:15:00	0	0	1165	99	91	10	0	0	50	3	2	1	0	0	7	1	1	0	0	0
16:30:00	0	0	1243	78	107	16	0	0	54	4	2	0	0	0	7	0	1	0	0	0
16:45:00	0	0	1370	127	119	12	0	0	56	2	2	0	0	0	7	0	1	0	0	0
17:00:00	0	0	1489	119	127	8	0	0	56	0	2	0	0	0	7	0	1	0	0	0
17:15:00	0	0	1628	139	133	6	0	0	60	4	2	0	0	0	7	0	1	0	0	0
17:30:00	0	0	1767	139	137	4	0	0	61	1	2	0	0	0	7	0	1	0	0	0
17:45:00	0	0	1876	109	143	6	0	0	62	1	2	0	0	0	7	0	1	0	0	0
18:00:00	0	0	1980	104	148	5	0	0	62	0	2	0	0	0	7	0	1	0	0	0
18:15:00	0	0	1980	0	148	0	0	0	62	0	2	0	0	0	7	0	1	0	0	0
18:15:15	0	0	1980	0	148	0	0	0	62	0	2	0	0	0	7	0	1	0	0	0

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Traffic Monitoring & Data Analysis

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Count Date: 5-Dec-19 Site #: 1919400007

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Buses - East Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		East Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 5-Dec-19 Site #: 1919400007

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Buses - South Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		South Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	1	1	71	71	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	2	1	200	129	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0
7:45:00	4	2	333	133	0	0	0	0	7	5	0	0	0	0	0	0	0	0	0	0
8:00:00	6	2	463	130	0	0	0	0	11	4	0	0	0	0	0	0	0	0	0	0
8:15:00	7	1	561	98	0	0	0	0	14	3	0	0	0	0	0	0	0	0	0	0
8:30:00	8	1	655	94	0	0	0	0	17	3	0	0	0	0	0	0	0	0	0	0
8:45:00	11	3	743	88	0	0	0	0	22	5	0	0	0	0	0	0	0	0	0	0
9:00:00	13	2	825	82	0	0	0	0	26	4	0	0	0	0	1	1	0	0	0	0
9:15:00	15	2	893	68	0	0	0	0	31	5	0	0	0	0	1	0	0	0	0	0
9:30:00	15	0	978	85	0	0	0	0	36	5	0	0	0	0	3	2	0	0	0	0
9:45:00	17	2	1050	72	0	0	0	0	37	1	0	0	0	0	3	0	0	0	0	0
10:00:00	19	2	1108	58	0	0	0	0	39	2	0	0	0	0	4	1	0	0	0	0
10:15:00	19	0	1108	0	0	0	0	0	39	0	0	0	0	0	4	0	0	0	0	0
15:00:00	19	0	1108	0	0	0	0	0	39	0	0	0	0	0	4	0	0	0	0	0
15:15:00	21	2	1166	58	0	0	0	0	39	0	0	0	0	0	4	0	0	0	0	0
15:30:00	23	2	1254	88	0	0	0	0	48	9	0	0	0	0	5	1	0	0	0	0
15:45:00	25	2	1333	79	0	0	0	0	50	2	0	0	0	0	5	0	0	0	0	0
16:00:00	26	1	1421	88	0	0	0	0	51	1	0	0	0	0	5	0	0	0	0	0
16:15:00	28	2	1491	70	0	0	0	0	55	4	0	0	0	0	5	0	0	0	0	0
16:30:00	37	9	1574	83	0	0	0	0	57	2	0	0	0	0	6	1	0	0	0	0
16:45:00	53	16	1682	108	0	0	2	2	58	1	0	0	0	0	6	0	0	0	0	0
17:00:00	64	11	1811	129	0	0	2	0	62	4	0	0	0	0	7	1	0	0	0	0
17:15:00	69	5	1924	113	0	0	2	0	66	4	0	0	0	0	7	0	0	0	0	0
17:30:00	74	5	2050	126	0	0	2	0	67	1	0	0	0	0	7	0	0	0	0	0
17:45:00	84	10	2176	126	0	0	2	0	68	1	0	0	0	0	7	0	0	0	0	0
18:00:00	87	3	2287	111	0	0	2	0	69	1	0	0	0	0	7	0	0	0	0	0
18:15:00	87	0	2287	0	0	0	2	0	69	0	0	0	0	0	7	0	0	0	0	0
18:15:15	87	0	2287	0	0	0	2	0	69	0	0	0	0	0	7	0	0	0	0	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 5-Dec-19 Site #: 1919400007

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Buses - West Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		West Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	7	3	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45:00	17	10	0	0	3	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0
8:00:00	26	9	0	0	4	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0
8:15:00	31	5	0	0	8	4	0	0	0	0	0	0	0	0	0	0	1	0	0	0
8:30:00	38	7	0	0	9	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0
8:45:00	44	6	0	0	11	2	0	0	0	0	1	1	0	0	0	0	1	0	0	0
9:00:00	47	3	0	0	11	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0
9:15:00	53	6	0	0	14	3	0	0	0	0	1	0	0	0	0	0	1	0	0	0
9:30:00	58	5	0	0	14	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0
9:45:00	64	6	0	0	16	2	0	0	0	0	1	0	0	0	0	0	1	0	0	0
10:00:00	73	9	0	0	18	2	0	0	0	0	2	1	0	0	0	0	1	0	0	0
10:15:00	73	0	0	0	18	0	0	0	0	0	2	0	0	0	0	0	1	0	0	0
15:00:00	73	0	0	0	18	0	0	0	0	0	2	0	0	0	0	0	1	0	0	0
15:15:00	76	3	0	0	18	0	0	0	0	0	2	0	0	0	0	0	1	0	0	0
15:30:00	85	9	0	0	19	1	0	0	0	0	3	1	0	0	0	0	1	0	0	0
15:45:00	90	5	0	0	23	4	0	0	0	0	4	1	0	0	0	0	1	0	0	0
16:00:00	96	6	0	0	24	1	0	0	0	0	4	0	1	1	0	0	1	0	0	0
16:15:00	101	5	0	0	25	1	0	0	0	0	4	0	2	1	0	0	1	0	0	0
16:30:00	105	4	0	0	26	1	0	0	0	0	5	1	2	0	0	0	1	0	0	0
16:45:00	113	8	0	0	28	2	0	0	0	0	5	0	2	0	0	0	1	0	0	0
17:00:00	122	9	0	0	34	6	0	0	0	0	5	0	2	0	0	0	1	0	0	0
17:15:00	127	5	0	0	42	8	0	0	0	0	7	2	2	0	0	0	1	0	0	0
17:30:00	132	5	0	0	46	4	0	0	0	0	8	1	2	0	0	0	1	0	0	0
17:45:00	137	5	0	0	53	7	0	0	0	0	8	0	2	0	0	0	1	0	0	0
18:00:00	141	4	0	0	55	2	0	0	0	0	8	0	2	0	0	0	1	0	0	0
18:15:00	141	0	0	0	55	0	0	0	0	0	8	0	2	0	0	0	1	0	0	0
18:15:15	141	0	0	0	55	0	0	0	0	0	8	0	2	0	0	0	1	0	0	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 10:00:00

One Hour Peak
From: 7:15:00
To: 8:15:00

Municipality: London
Site #: 1919400006
Intersection: Wonderland Rd & HWY 401 WB R
TFR File #: 1
Count date: 5-Dec-19

Weather conditions:

Person counted:
Person prepared:
Person checked:

** Non-Signalized Intersection **

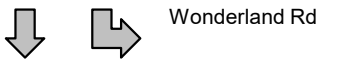
Major Road: Wonderland Rd runs N/S

North Leg Total: 842
North Entering: 334
North Peds: 0
Peds Cross: ⋈

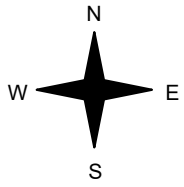
Buses	1	0	1
Trucks	6	5	11
Cars	256	66	322
Totals	263	71	

Buses	0
Trucks	14
Cars	494
Totals	508

East Leg Total: 95
East Entering: 16
East Peds: 0
Peds Cross: ⋈



Cars	8	0	8
	8	0	8
	16	0	0



Cars	Trucks	Buses	Totals
68	11	0	79

Cars	264
Trucks	6
Buses	1
Totals	271

Cars	486	2	488
Trucks	14	6	20
Buses	0	0	0
Totals	500	8	

Peds Cross: ⋈
South Peds: 0
South Entering: 508
South Leg Total: 779

Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 16:30:00
To: 17:30:00

Municipality: London
Site #: 1919400006
Intersection: Wonderland Rd & HWY 401 WB R
TFR File #: 1
Count date: 5-Dec-19

Weather conditions:

Person counted:
Person prepared:
Person checked:

** Non-Signalized Intersection **

Major Road: Wonderland Rd runs N/S

North Leg Total: 1071
North Entering: 549
North Peds: 0
Peds Cross: ⋈

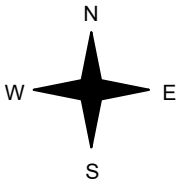
Buses	0	0	0
Trucks	9	2	11
Cars	398	140	538
Totals	407	142	

Buses	1
Trucks	12
Cars	509
Totals	522

East Leg Total: 228
East Entering: 76
East Peds: 0
Peds Cross: ⋈

Wonderland Rd

Cars	Trucks	Buses	Totals
21	3	0	24
47	5	0	52
68	8	0	

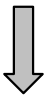


HWY 401 WB Ramp

Cars	Trucks	Buses	Totals
149	3	0	152

Wonderland Rd

Cars	445
Trucks	14
Buses	0
Totals	459



Cars	488	9	497
Trucks	9	1	10
Buses	1	0	1
Totals	498	10	

Peds Cross: ⋈
South Peds: 0
South Entering: 508
South Leg Total: 967

Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Total Count Diagram

Municipality: London Site #: 1919400006 Intersection: Wonderland Rd & HWY 401 WB R TFR File #: 1 Count date: 5-Dec-19	Weather conditions: Person counted: Person prepared: Person checked:
** Non-Signalized Intersection **	Major Road: Wonderland Rd runs N/S

North Leg Total: 4558
North Entering: 2107
North Peds: 0
Peds Cross: ⋈

Buses	6	2	8
Trucks	50	22	72
Cars	1491	536	2027
Totals	1547	560	

Buses	6
Trucks	73
Cars	2372
Totals	2451

East Leg Total: 801
East Entering: 198
East Peds: 0
Peds Cross: ⋈

Wonderland Rd

	Cars	Trucks	Buses	Totals
	70	8	0	78
	108	12	0	120
	178	20	0	

N
W E
S

HWY 401 WB Ramp

Cars	Trucks	Buses	Totals
560	41	2	603

Wonderland Rd

Cars	1599	Cars	2302	24	2326
Trucks	62	Trucks	65	19	84
Buses	6	Buses	6	0	6
Totals	1667	Totals	2373	43	

Peds Cross: ⋈
South Peds: 0
South Entering: 2416
South Leg Total: 4083

Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Traffic Count Summary

Intersection: Wonderland Rd & HWY 401 WB R | Count Date: 5-Dec-19 | Municipality: London

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Buses				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0
8:00:00	56	236	0	292	0
9:00:00	76	205	0	281	0
10:00:00	57	156	0	213	0
15:00:00	0	0	0	0	0
16:00:00	122	237	0	359	0
17:00:00	111	333	0	444	0
18:00:00	138	380	0	518	0
Totals:	560	1547	0	2107	0

North/South Total Approaches: 4523

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Buses				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0
8:00:00	0	477	2	479	0
9:00:00	0	379	13	392	0
10:00:00	0	300	7	307	0
15:00:00	0	0	0	0	0
16:00:00	0	324	4	328	0
17:00:00	0	409	4	413	0
18:00:00	0	484	13	497	0
S Totals:	0	2373	43	2416	0

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Buses				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0
8:00:00	9	0	6	15	0
9:00:00	7	0	4	11	0
10:00:00	6	0	5	11	0
15:00:00	0	0	0	0	0
16:00:00	13	0	12	25	0
17:00:00	57	0	35	92	0
18:00:00	28	0	16	44	0
Totals:	120	0	78	198	0

East/West Total Approaches: 198

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Buses				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0
8:00:00	0	0	0	0	0
9:00:00	0	0	0	0	0
10:00:00	0	0	0	0	0
15:00:00	0	0	0	0	0
16:00:00	0	0	0	0	0
17:00:00	0	0	0	0	0
18:00:00	0	0	0	0	0
W Totals:	0	0	0	0	0

Calculated Values for Traffic Crossing Major Street

Hours Ending:	7:00	8:00	9:00	10:00	15:00	16:00	17:00	18:00
Crossing Values:	0	9	7	6	0	13	57	28

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 5-Dec-19 Site #: 1919400006

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Buses - North Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	6	6	32	32	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	21	15	79	47	0	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0
7:45:00	34	13	162	83	0	0	4	1	1	1	0	0	0	0	1	1	0	0	0	0
8:00:00	52	18	234	72	0	0	4	0	1	0	0	0	0	0	1	0	0	0	0	0
8:15:00	72	20	288	54	0	0	7	3	6	5	0	0	0	0	1	0	0	0	0	0
8:30:00	90	18	341	53	0	0	8	1	7	1	0	0	0	0	2	1	0	0	0	0
8:45:00	103	13	387	46	0	0	11	3	10	3	0	0	0	0	2	0	0	0	0	0
9:00:00	120	17	428	41	0	0	12	1	11	1	0	0	0	0	2	0	0	0	0	0
9:15:00	139	19	455	27	0	0	14	2	12	1	0	0	0	0	2	0	0	0	0	0
9:30:00	153	14	494	39	0	0	15	1	14	2	0	0	0	0	4	2	0	0	0	0
9:45:00	163	10	523	29	0	0	16	1	17	3	0	0	0	0	4	0	0	0	0	0
10:00:00	172	9	570	47	0	0	17	1	23	6	0	0	0	0	4	0	0	0	0	0
10:15:00	172	0	570	0	0	0	17	0	23	0	0	0	0	0	4	0	0	0	0	0
15:00:00	172	0	570	0	0	0	17	0	23	0	0	0	0	0	4	0	0	0	0	0
15:15:00	201	29	630	60	0	0	17	0	24	1	0	0	1	1	4	0	0	0	0	0
15:30:00	230	29	688	58	0	0	17	0	27	3	0	0	2	1	5	1	0	0	0	0
15:45:00	260	30	743	55	0	0	17	0	29	2	0	0	2	0	5	0	0	0	0	0
16:00:00	292	32	795	52	0	0	17	0	34	5	0	0	2	0	5	0	0	0	0	0
16:15:00	318	26	866	71	0	0	17	0	36	2	0	0	2	0	6	1	0	0	0	0
16:30:00	338	20	928	62	0	0	20	3	39	3	0	0	2	0	6	0	0	0	0	0
16:45:00	366	28	1022	94	0	0	21	1	40	1	0	0	2	0	6	0	0	0	0	0
17:00:00	399	33	1121	99	0	0	21	0	40	0	0	0	2	0	6	0	0	0	0	0
17:15:00	435	36	1225	104	0	0	21	0	47	7	0	0	2	0	6	0	0	0	0	0
17:30:00	478	43	1326	101	0	0	22	1	48	1	0	0	2	0	6	0	0	0	0	0
17:45:00	508	30	1412	86	0	0	22	0	49	1	0	0	2	0	6	0	0	0	0	0
18:00:00	536	28	1491	79	0	0	22	0	50	1	0	0	2	0	6	0	0	0	0	0
18:15:00	536	0	1491	0	0	0	22	0	50	0	0	0	2	0	6	0	0	0	0	0
18:15:15	536	0	1491	0	0	0	22	0	50	0	0	0	2	0	6	0	0	0	0	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 5-Dec-19 Site #: 1919400006

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Buses - East Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		East Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45:00	7	6	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00:00	9	2	0	0	6	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15:00	9	0	0	0	8	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30:00	11	2	0	0	9	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45:00	15	4	0	0	10	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00:00	16	1	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15:00	17	1	0	0	11	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30:00	19	2	0	0	12	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45:00	20	1	0	0	13	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
10:00:00	21	1	0	0	15	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15:00	21	0	0	0	15	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00:00	21	0	0	0	15	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15:00	25	4	0	0	18	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30:00	31	6	0	0	20	2	1	0	0	0	3	3	0	0	0	0	0	0	0	0
15:45:00	31	0	0	0	21	1	1	0	0	0	4	1	0	0	0	0	0	0	0	0
16:00:00	34	3	0	0	23	2	1	0	0	0	4	0	0	0	0	0	0	0	0	0
16:15:00	37	3	0	0	25	2	1	0	0	0	4	0	0	0	0	0	0	0	0	0
16:30:00	56	19	0	0	39	14	5	4	0	0	5	1	0	0	0	0	0	0	0	0
16:45:00	66	10	0	0	50	11	9	4	0	0	8	3	0	0	0	0	0	0	0	0
17:00:00	83	17	0	0	54	4	9	0	0	0	8	0	0	0	0	0	0	0	0	0
17:15:00	94	11	0	0	58	4	10	1	0	0	8	0	0	0	0	0	0	0	0	0
17:30:00	103	9	0	0	60	2	10	0	0	0	8	0	0	0	0	0	0	0	0	0
17:45:00	107	4	0	0	66	6	12	2	0	0	8	0	0	0	0	0	0	0	0	0
18:00:00	108	1	0	0	70	4	12	0	0	0	8	0	0	0	0	0	0	0	0	0
18:15:00	108	0	0	0	70	0	12	0	0	0	8	0	0	0	0	0	0	0	0	0
18:15:15	108	0	0	0	70	0	12	0	0	0	8	0	0	0	0	0	0	0	0	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 5-Dec-19 Site #: 1919400006

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Buses - South Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		South Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	75	75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	0	0	205	130	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0
7:45:00	0	0	338	133	1	1	0	0	7	5	0	0	0	0	0	0	0	0	0	0
8:00:00	0	0	466	128	1	0	0	0	11	4	1	1	0	0	0	0	0	0	0	0
8:15:00	0	0	561	95	2	1	0	0	14	3	6	5	0	0	0	0	0	0	0	0
8:30:00	0	0	656	95	2	0	0	0	17	3	6	0	0	0	0	0	0	0	0	0
8:45:00	0	0	746	90	3	1	0	0	22	5	7	1	0	0	0	0	0	0	0	0
9:00:00	0	0	829	83	3	0	0	0	26	4	12	5	0	0	1	1	0	0	0	0
9:15:00	0	0	899	70	3	0	0	0	31	5	12	0	0	0	1	0	0	0	0	0
9:30:00	0	0	983	84	3	0	0	0	36	5	14	2	0	0	3	2	0	0	0	0
9:45:00	0	0	1056	73	3	0	0	0	37	1	18	4	0	0	3	0	0	0	0	0
10:00:00	0	0	1114	58	4	1	0	0	39	2	18	0	0	0	3	0	0	0	0	0
10:15:00	0	0	1114	0	4	0	0	0	39	0	18	0	0	0	3	0	0	0	0	0
15:00:00	0	0	1114	0	4	0	0	0	39	0	18	0	0	0	3	0	0	0	0	0
15:15:00	0	0	1171	57	5	1	0	0	39	0	18	0	0	0	3	0	0	0	0	0
15:30:00	0	0	1260	89	7	2	0	0	45	6	18	0	0	0	4	1	0	0	0	0
15:45:00	0	0	1340	80	7	0	0	0	46	1	18	0	0	0	4	0	0	0	0	0
16:00:00	0	0	1427	87	8	1	0	0	49	3	18	0	0	0	4	0	0	0	0	0
16:15:00	0	0	1498	71	10	2	0	0	53	4	18	0	0	0	4	0	0	0	0	0
16:30:00	0	0	1576	78	10	0	0	0	54	1	18	0	0	0	5	1	0	0	0	0
16:45:00	0	0	1689	113	10	0	0	0	54	0	19	1	0	0	5	0	0	0	0	0
17:00:00	0	0	1825	136	11	1	0	0	58	4	19	0	0	0	6	1	0	0	0	0
17:15:00	0	0	1937	112	16	5	0	0	62	4	19	0	0	0	6	0	0	0	0	0
17:30:00	0	0	2064	127	19	3	0	0	63	1	19	0	0	0	6	0	0	0	0	0
17:45:00	0	0	2192	128	21	2	0	0	64	1	19	0	0	0	6	0	0	0	0	0
18:00:00	0	0	2302	110	24	3	0	0	65	1	19	0	0	0	6	0	0	0	0	0
18:15:00	0	0	2302	0	24	0	0	0	65	0	19	0	0	0	6	0	0	0	0	0
18:15:15	0	0	2302	0	24	0	0	0	65	0	19	0	0	0	6	0	0	0	0	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 5-Dec-19 Site #: 1919400006

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Buses - West Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		West Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 10:00:00

One Hour Peak
From: 7:15:00
To: 8:15:00

Municipality: London
Site #: 1919400005
Intersection: Wonderland Rd & Manning Dr
TFR File #: 1
Count date: 5-Dec-19

Weather conditions:

Person counted:
Person prepared:
Person checked:

** Non-Signalized Intersection **

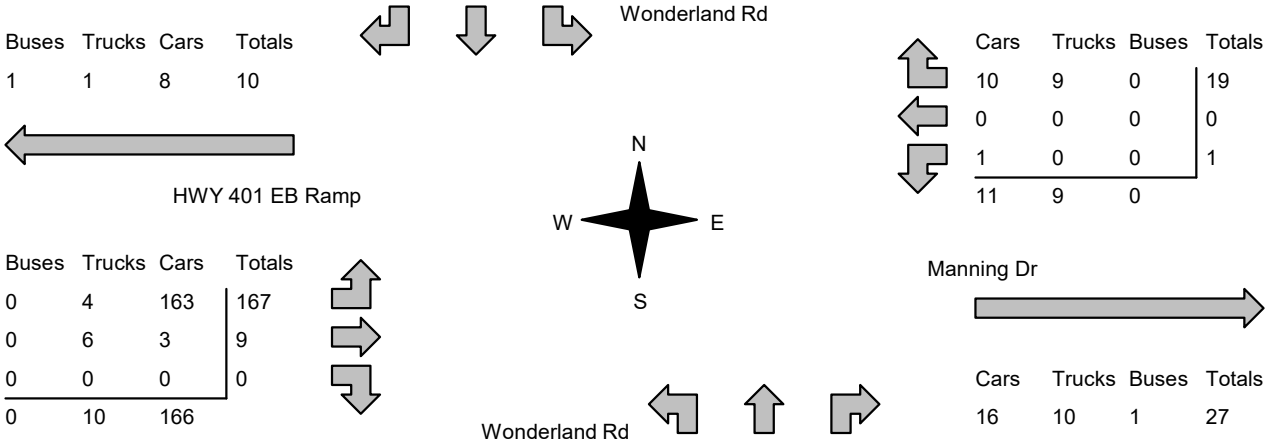
Major Road: Wonderland Rd runs N/S

North Leg Total: 775
North Entering: 271
North Peds: 0
Peds Cross: ⋈

Buses	0	0	1	1
Trucks	0	2	4	6
Cars	5	249	10	264
Totals	5	251	15	

Buses	0
Trucks	22
Cars	482
Totals	504

East Leg Total: 47
East Entering: 20
East Peds: 0
Peds Cross: ⧖



Buses	Trucks	Cars	Totals
1	1	8	10

Cars	Trucks	Buses	Totals
10	9	0	19
0	0	0	0
1	0	0	1
11	9	0	

Buses	Trucks	Cars	Totals
0	4	163	167
0	6	3	9
0	0	0	0
0	10	166	

Cars	Trucks	Buses	Totals
16	10	1	27

Peds Cross: ⧖
West Peds: 0
West Entering: 176
West Leg Total: 186

Cars	250
Trucks	2
Buses	0
Totals	252

Cars	3	309	3	315
Trucks	1	9	0	10
Buses	1	0	0	1
Totals	5	318	3	

Peds Cross: ⋈
South Peds: 0
South Entering: 326
South Leg Total: 578

Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 16:45:00
To: 17:45:00

Municipality: London
Site #: 1919400005
Intersection: Wonderland Rd & Manning Dr
TFR File #: 1
Count date: 5-Dec-19

Weather conditions:

Person counted:
Person prepared:
Person checked:

** Non-Signalized Intersection **

Major Road: Wonderland Rd runs N/S

North Leg Total: 972
North Entering: 444
North Peds: 0
Peds Cross: ⋈

Buses	0	0	0	0
Trucks	0	5	8	13
Cars	10	412	9	431
Totals	10	417	17	

Buses	1
Trucks	11
Cars	516
Totals	528

East Leg Total: 39
East Entering: 14
East Peds: 0
Peds Cross: ⧖

Wonderland Rd

Buses	Trucks	Cars	Totals
0	10	52	62

HWY 401 EB Ramp

Cars	Trucks	Buses	Totals
13	0	0	13
1	0	0	1
0	0	0	0
14	0	0	

N
W E
S

Buses	Trucks	Cars	Totals
0	5	69	74
0	0	2	2
0	2	25	27
0	7	96	

Manning Dr

Cars	Trucks	Buses	Totals
16	9	0	25

Wonderland Rd

Peds Cross: ⧖
West Peds: 0
West Entering: 103
West Leg Total: 165

Cars	437
Trucks	7
Buses	0
Totals	444

Cars	41	434	5	480
Trucks	10	6	1	17
Buses	0	1	0	1
Totals	51	441	6	

Peds Cross: ⋈
South Peds: 0
South Entering: 498
South Leg Total: 942

Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Total Count Diagram

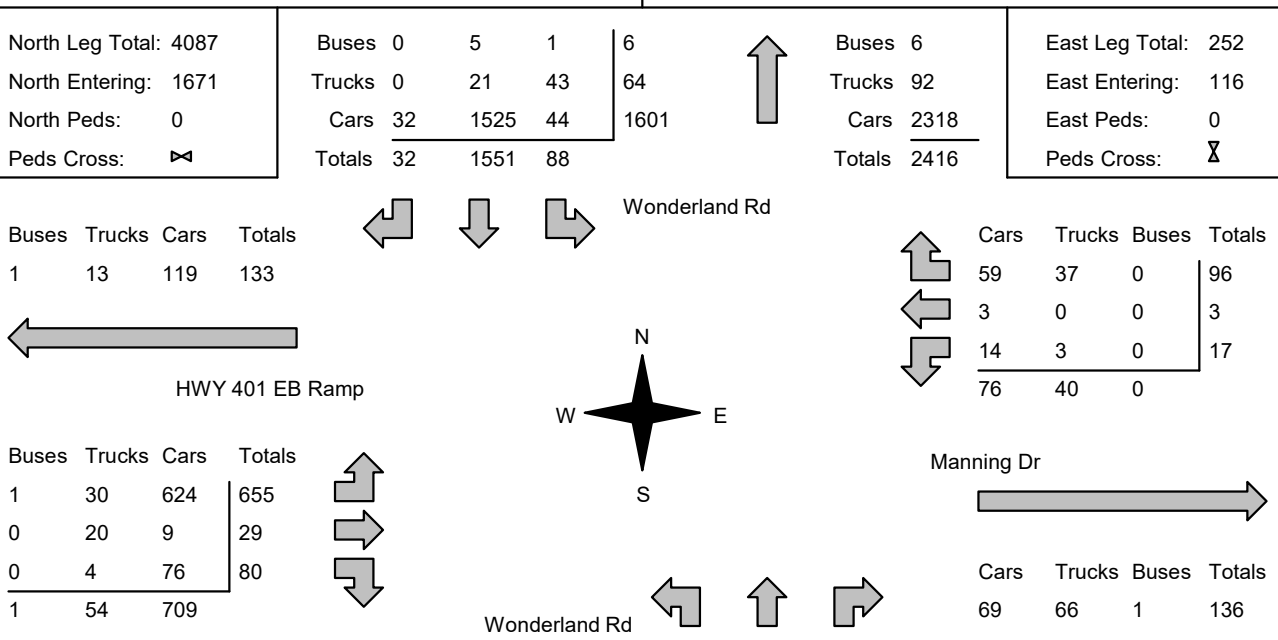
Municipality: London
Site #: 1919400005
Intersection: Wonderland Rd & Manning Dr
TFR File #: 1
Count date: 5-Dec-19

Weather conditions:

Person counted:
Person prepared:
Person checked:

** Non-Signalized Intersection **

Major Road: Wonderland Rd runs N/S



Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Traffic Count Summary

Intersection: Wonderland Rd & Manning Dr | Count Date: 5-Dec-19 | Municipality: London

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Buses				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0
8:00:00	13	231	2	246	0
9:00:00	10	202	6	218	0
10:00:00	15	137	7	159	0
15:00:00	0	0	0	0	0
16:00:00	20	228	2	250	0
17:00:00	10	374	8	392	0
18:00:00	20	379	7	406	0
Totals:	88	1551	32	1671	0

North/South Total Approaches: 3453

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Buses				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0
8:00:00	6	294	3	303	0
9:00:00	3	239	1	243	0
10:00:00	3	168	6	177	0
15:00:00	0	0	0	0	0
16:00:00	11	230	1	242	0
17:00:00	31	322	4	357	0
18:00:00	44	412	4	460	0
S Totals:	98	1665	19	1782	0

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Buses				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0
8:00:00	1	0	12	13	0
9:00:00	1	1	29	31	0
10:00:00	6	0	17	23	0
15:00:00	0	0	1	1	0
16:00:00	4	1	11	16	0
17:00:00	4	1	16	21	0
18:00:00	1	0	10	11	0
Totals:	17	3	96	116	0

East/West Total Approaches: 880

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Buses				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0
8:00:00	170	8	1	179	0
9:00:00	123	6	2	131	0
10:00:00	125	9	4	138	0
15:00:00	0	0	0	0	0
16:00:00	91	2	1	94	0
17:00:00	72	3	45	120	0
18:00:00	74	1	27	102	0
W Totals:	655	29	80	764	0

Calculated Values for Traffic Crossing Major Street

Hours Ending:	7:00	8:00	9:00	10:00	15:00	16:00	17:00	18:00
Crossing Values:	0	179	130	140	0	97	79	76

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 5-Dec-19 Site #: 1919400005

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Buses - North Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	1	1	35	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	3	2	77	42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45:00	7	4	157	80	2	2	1	1	0	0	0	0	1	1	0	0	0	0	0	0
8:00:00	11	4	231	74	2	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0
8:15:00	11	0	284	53	5	3	4	3	2	2	0	0	1	0	0	0	0	0	0	0
8:30:00	11	0	337	53	6	1	5	1	3	1	0	0	1	0	1	1	0	0	0	0
8:45:00	12	1	382	45	8	2	8	3	3	0	0	0	1	0	1	0	0	0	0	0
9:00:00	13	1	429	47	8	0	9	1	3	0	0	0	1	0	1	0	0	0	0	0
9:15:00	13	0	453	24	11	3	10	1	3	0	0	0	1	0	1	0	0	0	0	0
9:30:00	13	0	490	37	12	1	12	2	3	0	0	0	1	0	3	2	0	0	0	0
9:45:00	13	0	518	28	13	1	15	3	5	2	0	0	1	0	3	0	0	0	0	0
10:00:00	16	3	562	44	15	2	21	6	5	0	0	0	1	0	3	0	0	0	0	0
10:15:00	16	0	562	0	15	0	21	0	5	0	0	0	1	0	3	0	0	0	0	0
15:00:00	16	0	562	0	15	0	21	0	5	0	0	0	1	0	3	0	0	0	0	0
15:15:00	18	2	624	62	15	0	22	1	5	0	0	0	1	0	3	0	0	0	0	0
15:30:00	20	2	683	59	15	0	25	3	5	0	0	0	1	0	4	1	0	0	0	0
15:45:00	22	2	739	56	15	0	26	1	6	1	0	0	1	0	4	0	0	0	0	0
16:00:00	26	4	788	49	17	2	31	5	6	0	0	0	1	0	4	0	0	0	0	0
16:15:00	27	1	861	73	17	0	33	2	6	0	0	0	1	0	5	1	0	0	0	0
16:30:00	28	1	942	81	19	2	35	2	11	5	0	0	1	0	5	0	0	0	0	0
16:45:00	32	4	1038	96	20	1	35	0	15	4	0	0	1	0	5	0	0	0	0	0
17:00:00	32	0	1152	114	25	5	35	0	15	0	0	0	1	0	5	0	0	0	0	0
17:15:00	36	4	1259	107	26	1	41	6	17	2	0	0	1	0	5	0	0	0	0	0
17:30:00	38	2	1366	107	27	1	42	1	17	0	0	0	1	0	5	0	0	0	0	0
17:45:00	41	3	1450	84	30	3	43	1	20	3	0	0	1	0	5	0	0	0	0	0
18:00:00	44	3	1525	75	32	2	43	0	21	1	0	0	1	0	5	0	0	0	0	0
18:15:00	44	0	1525	0	32	0	43	0	21	0	0	0	1	0	5	0	0	0	0	0
18:15:15	44	0	1525	0	32	0	43	0	21	0	0	0	1	0	5	0	0	0	0	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 5-Dec-19 Site #: 1919400005

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Buses - East Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		East Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	1	1	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	1	0	0	0	5	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45:00	1	0	0	0	7	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00:00	1	0	0	0	10	3	0	0	0	0	2	2	0	0	0	0	0	0	0	0
8:15:00	2	1	0	0	12	2	0	0	0	0	9	7	0	0	0	0	0	0	0	0
8:30:00	2	0	1	1	15	3	0	0	0	0	10	1	0	0	0	0	0	0	0	0
8:45:00	2	0	1	0	18	3	0	0	0	0	14	4	0	0	0	0	0	0	0	0
9:00:00	2	0	1	0	21	3	0	0	0	0	20	6	0	0	0	0	0	0	0	0
9:15:00	2	0	1	0	22	1	0	0	0	0	22	2	0	0	0	0	0	0	0	0
9:30:00	3	1	1	0	25	3	1	1	0	0	25	3	0	0	0	0	0	0	0	0
9:45:00	4	1	1	0	25	0	2	1	0	0	29	4	0	0	0	0	0	0	0	0
10:00:00	6	2	1	0	27	2	2	0	0	0	31	2	0	0	0	0	0	0	0	0
10:15:00	6	0	1	0	27	0	2	0	0	0	32	1	0	0	0	0	0	0	0	0
15:00:00	6	0	1	0	27	0	2	0	0	0	32	0	0	0	0	0	0	0	0	0
15:15:00	8	2	1	0	28	1	3	1	0	0	32	0	0	0	0	0	0	0	0	0
15:30:00	8	0	2	1	31	3	3	0	0	0	35	3	0	0	0	0	0	0	0	0
15:45:00	8	0	2	0	33	2	3	0	0	0	35	0	0	0	0	0	0	0	0	0
16:00:00	9	1	2	0	34	1	3	0	0	0	36	1	0	0	0	0	0	0	0	0
16:15:00	10	1	2	0	40	6	3	0	0	0	37	1	0	0	0	0	0	0	0	0
16:30:00	11	1	2	0	43	3	3	0	0	0	37	0	0	0	0	0	0	0	0	0
16:45:00	13	2	2	0	46	3	3	0	0	0	37	0	0	0	0	0	0	0	0	0
17:00:00	13	0	3	1	49	3	3	0	0	0	37	0	0	0	0	0	0	0	0	0
17:15:00	13	0	3	0	53	4	3	0	0	0	37	0	0	0	0	0	0	0	0	0
17:30:00	13	0	3	0	58	5	3	0	0	0	37	0	0	0	0	0	0	0	0	0
17:45:00	13	0	3	0	59	1	3	0	0	0	37	0	0	0	0	0	0	0	0	0
18:00:00	14	1	3	0	59	0	3	0	0	0	37	0	0	0	0	0	0	0	0	0
18:15:00	14	0	3	0	59	0	3	0	0	0	37	0	0	0	0	0	0	0	0	0
18:15:15	14	0	3	0	59	0	3	0	0	0	37	0	0	0	0	0	0	0	0	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 5-Dec-19 Site #: 1919400005

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Buses - South Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		South Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	2	2	39	39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	2	0	119	80	1	1	0	0	2	2	0	0	1	1	0	0	0	0	0	0
7:45:00	4	2	211	92	1	0	1	1	7	5	0	0	1	0	0	0	0	0	0	0
8:00:00	4	0	286	75	3	2	1	0	8	1	0	0	1	0	0	0	0	0	0	0
8:15:00	5	1	348	62	3	0	1	0	9	1	0	0	1	0	0	0	0	0	0	0
8:30:00	6	1	409	61	4	1	1	0	9	0	0	0	1	0	0	0	0	0	0	0
8:45:00	6	0	467	58	4	0	1	0	11	2	0	0	1	0	0	0	0	0	0	0
9:00:00	7	1	520	53	4	0	1	0	12	1	0	0	1	0	1	1	0	0	0	0
9:15:00	8	1	558	38	5	1	1	0	13	1	0	0	1	0	1	0	0	0	0	0
9:30:00	9	1	609	51	8	3	1	0	15	2	1	1	1	0	2	1	0	0	0	0
9:45:00	10	1	653	44	8	0	1	0	15	0	1	0	1	0	2	0	0	0	0	0
10:00:00	10	0	684	31	9	1	1	0	15	0	1	0	1	0	2	0	0	0	0	0
10:15:00	10	0	684	0	9	0	1	0	15	0	1	0	1	0	2	0	0	0	0	0
15:00:00	10	0	684	0	9	0	1	0	15	0	1	0	1	0	2	0	0	0	0	0
15:15:00	15	5	721	37	9	0	1	0	15	0	1	0	1	0	2	0	0	0	0	0
15:30:00	16	1	789	68	9	0	1	0	16	1	1	0	1	0	3	1	0	0	0	0
15:45:00	17	1	850	61	9	0	1	0	16	0	2	1	1	0	3	0	0	0	0	0
16:00:00	21	4	910	60	9	0	1	0	18	2	2	0	1	0	3	0	0	0	0	0
16:15:00	23	2	956	46	9	0	1	0	18	0	2	0	1	0	3	0	0	0	0	0
16:30:00	26	3	1015	59	10	1	1	0	18	0	2	0	1	0	4	1	0	0	0	0
16:45:00	35	9	1111	96	11	1	3	2	18	0	2	0	1	0	4	0	0	0	0	0
17:00:00	48	13	1228	117	12	1	5	2	20	2	3	1	1	0	5	1	0	0	0	0
17:15:00	55	7	1327	99	13	1	8	3	22	2	3	0	1	0	5	0	0	0	0	0
17:30:00	68	13	1436	109	15	2	12	4	22	0	3	0	1	0	5	0	0	0	0	0
17:45:00	76	8	1545	109	16	1	13	1	24	2	3	0	1	0	5	0	0	0	0	0
18:00:00	84	8	1635	90	16	0	13	0	25	1	3	0	1	0	5	0	0	0	0	0
18:15:00	84	0	1635	0	16	0	13	0	25	0	3	0	1	0	5	0	0	0	0	0
18:15:15	84	0	1635	0	16	0	13	0	25	0	3	0	1	0	5	0	0	0	0	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

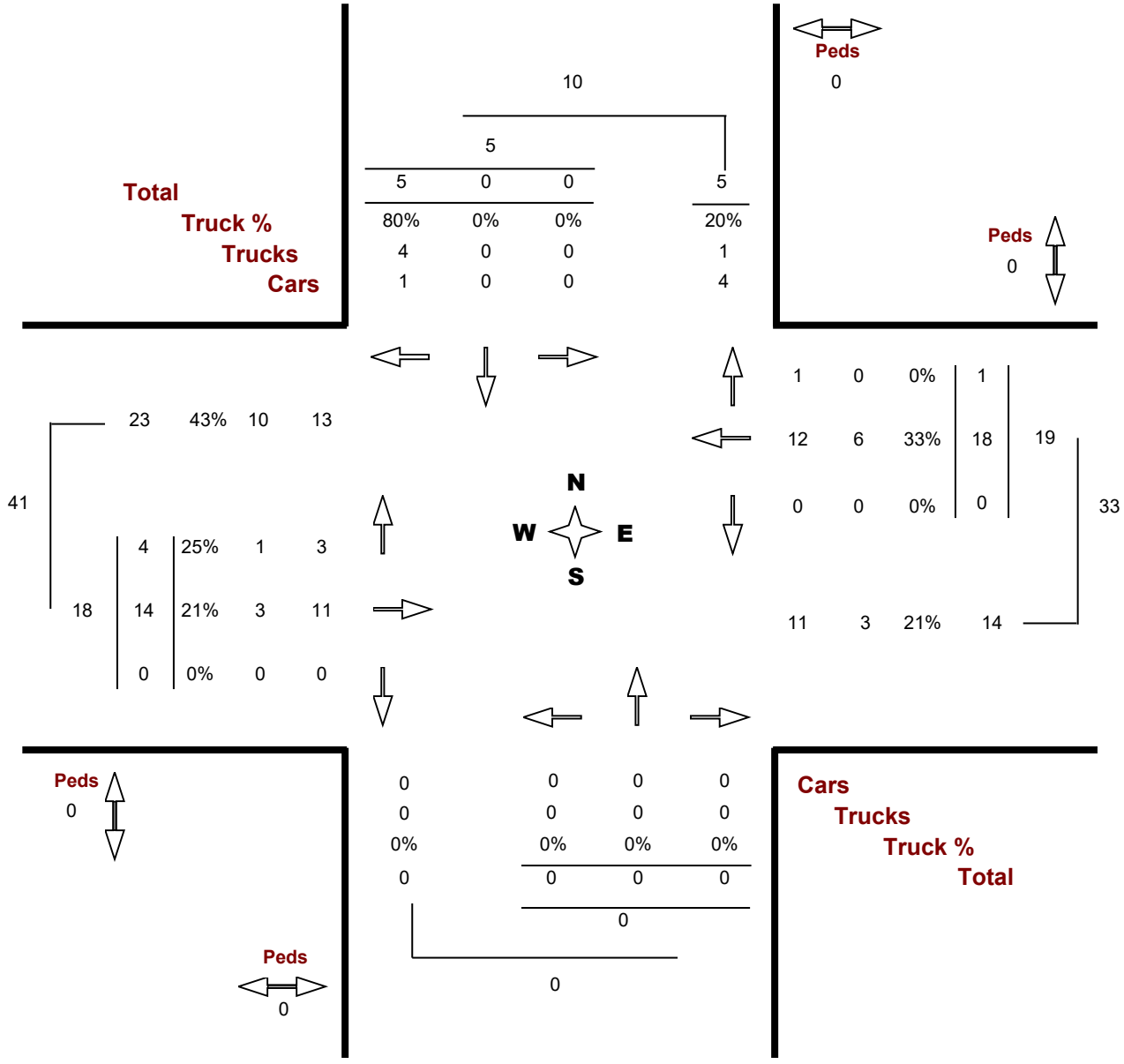
Accu-Traffic Inc.

Count Date: 5-Dec-19 Site #: 1919400005

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Buses - West Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		West Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	38	38	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	81	43	2	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
7:45:00	119	38	2	0	1	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0
8:00:00	167	48	3	1	1	0	3	2	5	4	0	0	0	0	0	0	0	0	0	0
8:15:00	201	34	4	1	1	0	4	1	6	1	0	0	0	0	0	0	0	0	0	0
8:30:00	233	32	4	0	3	2	6	2	7	1	0	0	0	0	0	0	0	0	0	0
8:45:00	260	27	4	0	3	0	7	1	9	2	0	0	0	0	0	0	0	0	0	0
9:00:00	285	25	4	0	3	0	8	1	10	1	0	0	0	0	0	0	0	0	0	0
9:15:00	315	30	4	0	5	2	10	2	12	2	0	0	0	0	0	0	0	0	0	0
9:30:00	345	30	4	0	5	0	12	2	14	2	0	0	1	1	0	0	0	0	0	0
9:45:00	377	32	4	0	7	2	13	1	16	2	0	0	1	0	0	0	0	0	0	0
10:00:00	403	26	4	0	7	0	14	1	19	3	0	0	1	0	0	0	0	0	0	0
10:15:00	403	0	4	0	7	0	14	0	19	0	0	0	1	0	0	0	0	0	0	0
15:00:00	403	0	4	0	7	0	14	0	19	0	0	0	1	0	0	0	0	0	0	0
15:15:00	425	22	4	0	8	1	14	0	19	0	0	0	1	0	0	0	0	0	0	0
15:30:00	449	24	4	0	8	0	17	3	19	0	0	0	1	0	0	0	0	0	0	0
15:45:00	465	16	4	0	8	0	17	0	19	0	0	0	1	0	0	0	0	0	0	0
16:00:00	490	25	5	1	8	0	18	1	20	1	0	0	1	0	0	0	0	0	0	0
16:15:00	510	20	5	0	9	1	21	3	20	0	1	1	1	0	0	0	0	0	0	0
16:30:00	526	16	7	2	42	33	22	1	20	0	2	1	1	0	0	0	0	0	0	0
16:45:00	536	10	7	0	48	6	23	1	20	0	2	0	1	0	0	0	0	0	0	0
17:00:00	555	19	8	1	51	3	25	2	20	0	2	0	1	0	0	0	0	0	0	0
17:15:00	567	12	9	1	61	10	27	2	20	0	3	1	1	0	0	0	0	0	0	0
17:30:00	589	22	9	0	68	7	28	1	20	0	3	0	1	0	0	0	0	0	0	0
17:45:00	605	16	9	0	73	5	28	0	20	0	4	1	1	0	0	0	0	0	0	0
18:00:00	624	19	9	0	76	3	30	2	20	0	4	0	1	0	0	0	0	0	0	0
18:15:00	624	0	9	0	76	0	30	0	20	0	4	0	1	0	0	0	0	0	0	0
18:15:15	624	0	9	0	76	0	30	0	20	0	4	0	1	0	0	0	0	0	0	0

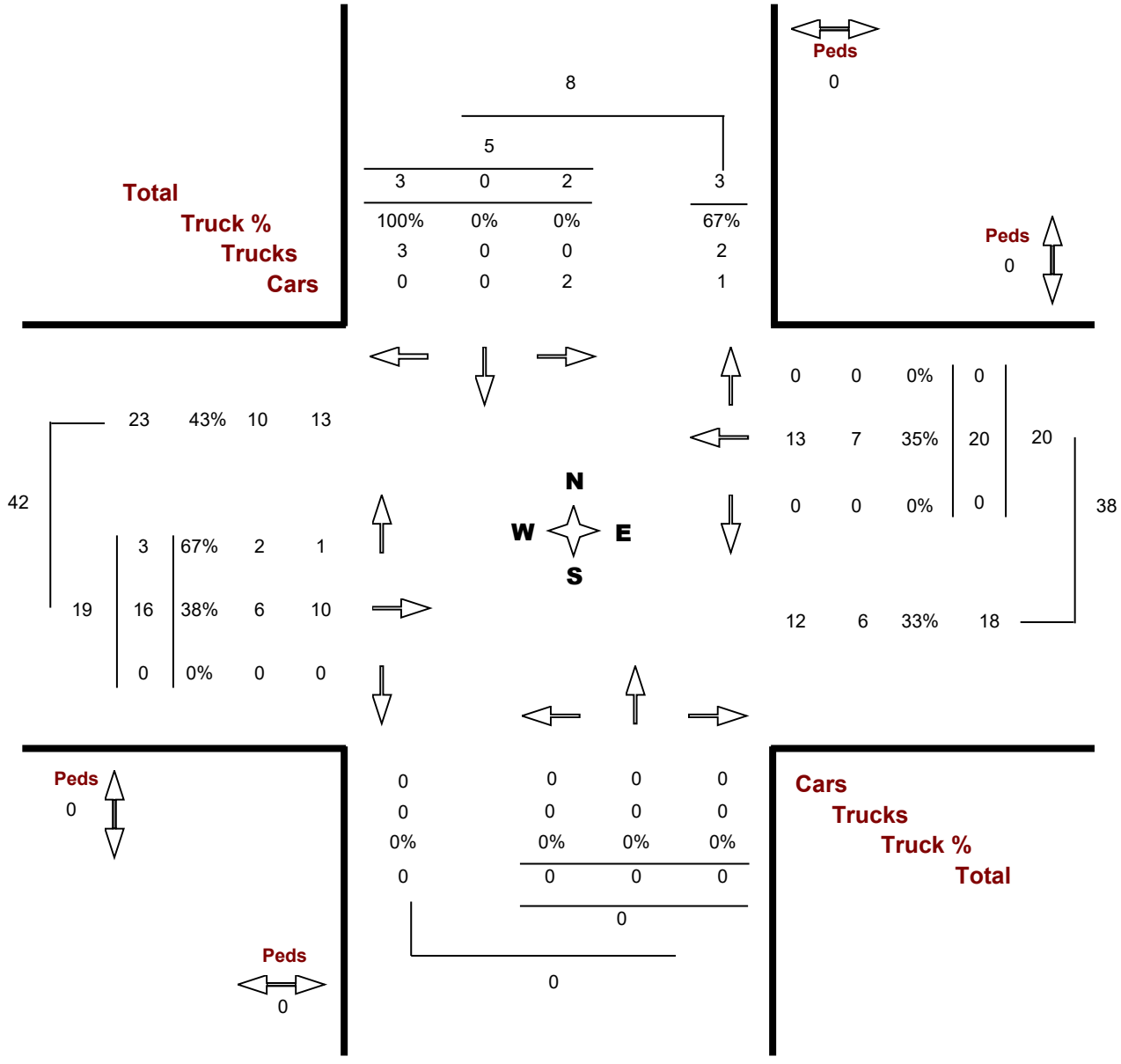
Turning Movements Report - AM Period

Location..... MANNING DR @ MORRISON RD
Municipality..... LONDON
GeoID..... INT7085
Count Date..... Tuesday, 09 May, 2017 **Peak Hour.....** 07:15 AM — 08:15 AM



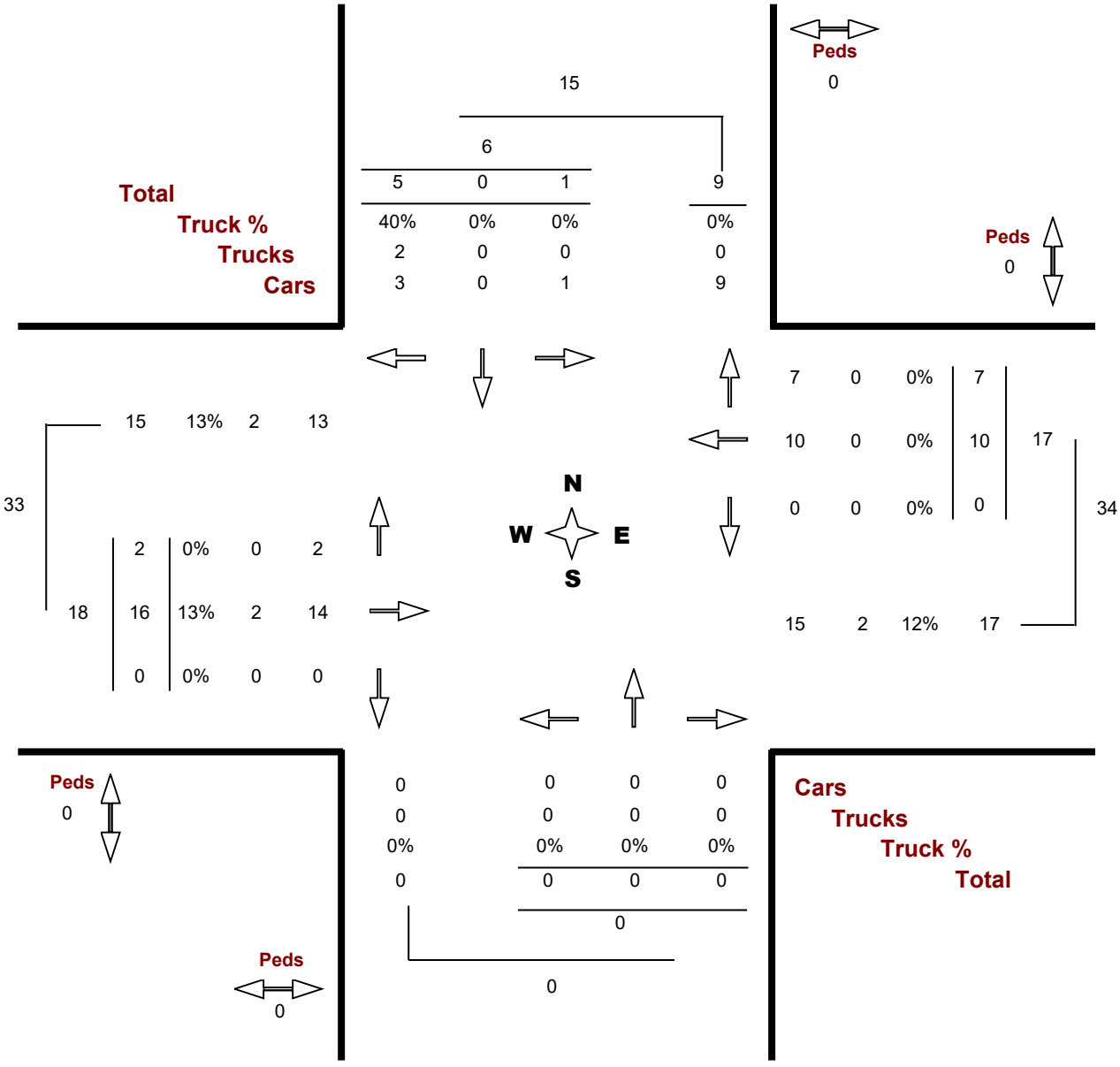
Turning Movements Report - MD Period

Location..... MANNING DR @ MORRISON RD
Municipality..... LONDON
GeoID..... INT7085
Count Date..... Tuesday, 09 May, 2017 **Peak Hour.....** 11:00 AM — 12:00 PM



Turning Movements Report - PM Period

Location..... MANNING DR @ MORRISON RD
Municipality..... LONDON
GeoID..... INT7085
Count Date..... Tuesday, 09 May, 2017 **Peak Hour.....** 05:00 PM — 06:00 PM



Horizon Data Services Ltd

318 Simonston Boulevard
Thornhill ON L3T 4T5
(416) 840-6619

"We do not estimate...we count"

File Name : Manning Dr at White Oaks Rd
Site Code : 00000000
Start Date : 10/31/2017
Page No : 1

Groups Printed- Cars - Trucks - Heavys - Cyclists

	White Oaks Southbound						Mannings Dr Westbound						White Oaks Northbound						Mannings Dr Eastbound						
Start Time	Right	Thru	Left	Uturns	Peds	App. Total	Right	Thru	Left	Uturns	Peds	App. Total	Right	Thru	Left	Uturns	Peds	App. Total	Right	Thru	Left	Uturns	Peds	App. Total	Int. Total
07:00 AM	0	4	1	0	0	5	0	3	3	0	0	6	2	11	1	0	0	14	1	6	0	0	0	7	32
07:15 AM	2	10	0	0	0	12	1	4	0	0	0	5	0	15	3	0	0	18	1	0	0	0	0	1	36
07:30 AM	0	3	0	0	0	3	1	2	0	0	0	3	0	18	1	0	0	19	0	5	0	0	0	5	30
07:45 AM	0	5	1	0	0	6	3	1	0	0	0	4	1	20	1	0	0	22	0	1	0	0	0	1	33
Total	2	22	2	0	0	26	5	10	3	0	0	18	3	64	6	0	0	73	2	12	0	0	0	14	131
08:00 AM	0	6	0	0	0	6	0	2	1	0	0	3	0	14	1	0	0	15	0	1	0	0	0	1	25
08:15 AM	0	5	2	0	0	7	1	3	0	0	0	4	1	4	1	0	0	6	1	3	1	0	0	5	22
08:30 AM	0	3	1	0	0	4	2	3	0	0	0	5	1	15	0	0	0	16	0	6	0	0	0	6	31
08:45 AM	0	5	4	0	0	9	2	6	1	0	0	9	0	7	0	0	0	7	0	2	0	0	0	2	27
Total	0	19	7	0	0	26	5	14	2	0	0	21	2	40	2	0	0	44	1	12	1	0	0	14	105
11:00 AM	1	8	3	0	0	12	1	3	0	0	0	4	1	3	0	0	0	4	0	8	0	0	0	8	28
11:15 AM	0	3	1	0	0	4	4	10	0	0	0	14	0	7	0	0	0	7	0	3	0	0	0	3	28
11:30 AM	0	7	1	0	0	8	1	3	2	0	0	6	0	6	2	0	0	8	0	6	0	0	0	6	28
11:45 AM	0	6	2	0	0	8	3	1	0	0	0	4	0	11	1	0	0	12	1	6	1	0	0	8	32
Total	1	24	7	0	0	32	9	17	2	0	0	28	1	27	3	0	0	31	1	23	1	0	0	25	116
12:00 PM	0	5	1	0	0	6	1	5	0	0	0	6	1	3	1	0	0	5	0	5	0	0	0	5	22
12:15 PM	1	6	3	0	0	10	1	8	0	0	0	9	0	4	1	0	0	5	0	8	0	0	0	8	32
12:30 PM	0	10	2	0	0	12	0	5	1	0	0	6	1	2	1	0	0	4	0	4	0	0	0	4	26
12:45 PM	2	5	4	0	0	11	1	7	1	0	0	9	0	6	0	0	0	6	0	6	0	0	0	6	32
Total	3	26	10	0	0	39	3	25	2	0	0	30	2	15	3	0	0	20	0	23	0	0	0	23	112
01:00 PM	0	3	2	0	0	5	6	5	0	0	0	11	0	6	0	0	0	6	1	3	0	0	0	4	26
01:15 PM	0	11	4	0	0	15	6	3	0	1	0	10	0	3	0	0	0	3	1	8	0	0	0	9	37
01:30 PM	1	4	2	0	0	7	3	6	0	0	0	9	0	4	0	0	0	4	0	9	2	0	0	11	31
01:45 PM	0	7	0	0	0	7	0	6	0	0	0	6	0	5	0	0	0	5	0	6	0	0	0	6	24
Total	1	25	8	0	0	34	15	20	0	1	0	36	0	18	0	0	0	18	2	26	2	0	0	30	118
03:00 PM	0	8	1	0	0	9	5	4	1	1	0	11	1	5	1	0	0	7	1	4	0	0	0	5	32

Horizon Data Services Ltd

318 Simonston Boulevard
Thornhill ON L3T 4T5
(416) 840-6619

"We do not estimate...we count"

File Name : Manning Dr at White Oaks Rd
Site Code : 00000000
Start Date : 10/31/2017

Groups Printed- Cars - Trucks - Heavys - Cyclists

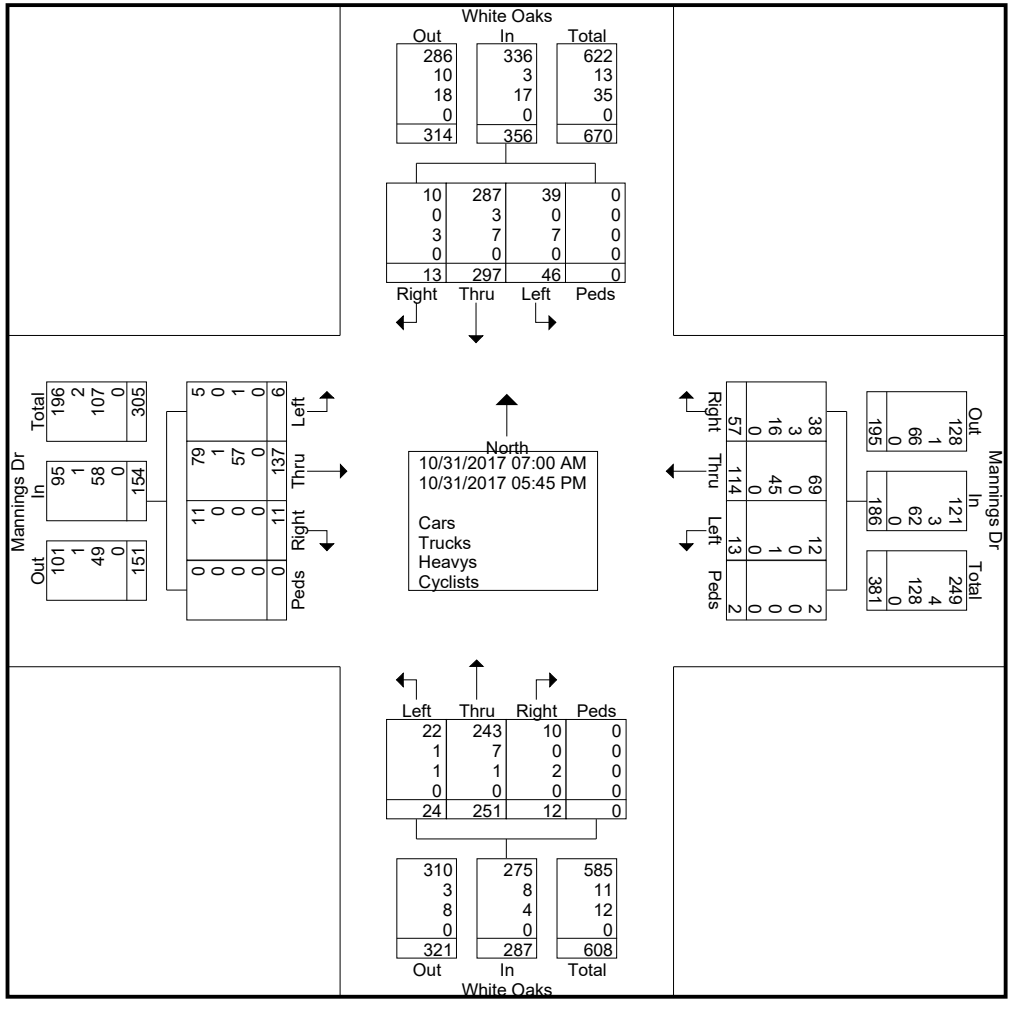
	White Oaks Southbound						Mannings Dr Westbound						White Oaks Northbound						Mannings Dr Eastbound						
Start Time	Right	Thru	Left	Uturns	Peds	App. Total	Right	Thru	Left	Uturns	Peds	App. Total	Right	Thru	Left	Uturns	Peds	App. Total	Right	Thru	Left	Uturns	Peds	App. Total	Int. Total
03:15 PM	2	15	0	0	0	17	3	5	0	0	0	8	0	10	4	0	0	14	1	3	1	0	0	5	44
03:30 PM	0	12	1	0	0	13	0	4	1	0	0	5	2	6	0	0	0	8	1	5	0	0	0	6	32
03:45 PM	0	12	0	0	0	12	3	3	0	0	0	6	0	10	0	0	0	10	0	3	0	0	0	3	31
Total	2	47	2	0	0	51	11	16	2	1	0	30	3	31	5	0	0	39	3	15	1	0	0	19	139
04:00 PM	0	18	3	0	0	21	3	4	0	0	0	7	0	9	0	0	0	9	0	7	0	0	0	7	44
04:15 PM	0	17	0	0	0	17	1	1	1	0	0	3	1	9	1	0	0	11	0	6	1	0	0	7	38
04:30 PM	0	25	4	0	0	29	0	0	0	0	0	0	0	7	1	0	0	8	0	2	0	0	0	2	39
04:45 PM	1	18	1	0	0	20	1	3	0	0	0	4	0	12	2	0	0	14	1	1	0	0	0	2	40
Total	1	78	8	0	0	87	5	8	1	0	0	14	1	37	4	0	0	42	1	16	1	0	0	18	161
05:00 PM	0	24	1	0	0	25	1	1	1	0	0	3	0	7	0	0	0	7	0	3	0	0	0	3	38
05:15 PM	2	13	1	0	0	16	1	0	0	0	0	1	0	3	0	0	0	3	0	4	0	0	0	4	24
05:30 PM	0	10	0	0	0	10	1	3	0	0	0	4	0	6	1	0	0	7	0	2	0	0	0	2	23
05:45 PM	1	9	0	0	0	10	1	0	0	0	0	1	0	3	0	0	0	3	1	1	0	0	0	2	16
Total	3	56	2	0	0	61	4	4	1	0	0	9	0	19	1	0	0	20	1	10	0	0	0	11	101
Grand Total	13	297	46	0	0	356	57	114	13	2	0	186	12	251	24	0	0	287	11	137	6	0	0	154	983
Apprch %	3.7	83.4	12.9	0	0		30.6	61.3	7	1.1	0		4.2	87.5	8.4	0	0		7.1	89	3.9	0	0		
Total %	1.3	30.2	4.7	0	0	36.2	5.8	11.6	1.3	0.2	0	18.9	1.2	25.5	2.4	0	0	29.2	1.1	13.9	0.6	0	0	15.7	
Cars	10	287	39	0	0	336	38	69	12	2	0	121	10	243	22	0	0	275	11	79	5	0	0	95	827
% Cars	76.9	96.6	84.8	0	0	94.4	66.7	60.5	92.3	100	0	65.1	83.3	96.8	91.7	0	0	95.8	100	57.7	83.3	0	0	61.7	84.1
Trucks	0	3	0	0	0	3	3	0	0	0	0	3	0	7	1	0	0	8	0	1	0	0	0	1	15
% Trucks	0	1	0	0	0	0.8	5.3	0	0	0	0	1.6	0	2.8	4.2	0	0	2.8	0	0.7	0	0	0	0.6	1.5
Heavys	3	7	7	0	0	17	16	45	1	0	0	62	2	1	1	0	0	4	0	57	1	0	0	58	141
% Heavys	23.1	2.4	15.2	0	0	4.8	28.1	39.5	7.7	0	0	33.3	16.7	0.4	4.2	0	0	1.4	0	41.6	16.7	0	0	37.7	14.3
Cyclists	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Cyclists	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Horizon Data Services Ltd

318 Simonston Boulevard
Thornhill ON L3T 4T5
(416) 840-6619

"We do not estimate...we count"

File Name : Manning Dr at White Oaks Rd
Site Code : 00000000
Start Date : 10/31/2017



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318 Simonston Boulevard
Thornhill ON L3T 4T5
(416) 840-6619

"We do not estimate...we count"

File Name : Manning Dr at White Oaks Rd
Site Code : 00000000
Start Date : 10/31/2017
Page No : 4

	White Oaks Southbound						Mannings Dr Westbound						White Oaks Northbound						Mannings Dr Eastbound						
Start Time	Right	Thru	Left	Uturns	Peds	App. Total	Right	Thru	Left	Uturns	Peds	App. Total	Right	Thru	Left	Uturns	Peds	App. Total	Right	Thru	Left	Uturns	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 07:00 AM																									
07:00 AM	0	4	**1**	0	0	5	0	3	**3**	0	0	**6**	**2**	11	1	0	0	14	**1**	**6**	0	0	0	**7**	32
07:15 AM	**2**	**10**	0	0	0	**12**	1	**4**	0	0	0	5	0	15	**3**	0	0	18	1	0	0	0	0	1	**36**
07:30 AM	0	3	0	0	0	3	1	2	0	0	0	3	0	18	1	0	0	19	0	5	0	0	0	5	30
07:45 AM	0	5	1	0	0	6	**3**	1	0	0	0	4	1	**20**	1	0	0	**22**	0	1	0	0	0	1	33
Total Volume	2	22	2	0	0	26	5	10	3	0	0	18	3	64	6	0	0	73	2	12	0	0	0	14	131
% App. Total	7.7	84.6	7.7	0	0		27.8	55.6	16.7	0	0		4.1	87.7	8.2	0	0		14.3	85.7	0	0	0		
PHF	.250	.550	.500	.000	.000	.542	.417	.625	.250	.000	.000	.750	.375	.800	.500	.000	.000	.830	.500	.500	.000	.000	.000	.500	.910
Cars	0	20	1	0	0	21	4	9	3	0	0	16	3	63	6	0	0	72	2	9	0	0	0	11	120
% Cars	0	90.9	50.0	0	0	80.8	80.0	90.0	100	0	0	88.9	100	98.4	100	0	0	98.6	100	75.0	0	0	0	78.6	91.6
Trucks	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% Trucks	0	4.5	0	0	0	3.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.8
Heavys	2	1	1	0	0	4	1	1	0	0	0	2	0	1	0	0	0	1	0	3	0	0	0	3	10
% Heavys	100	4.5	50.0	0	0	15.4	20.0	10.0	0	0	0	11.1	0	1.6	0	0	0	1.4	0	25.0	0	0	0	21.4	7.6
Cyclists	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Cyclists	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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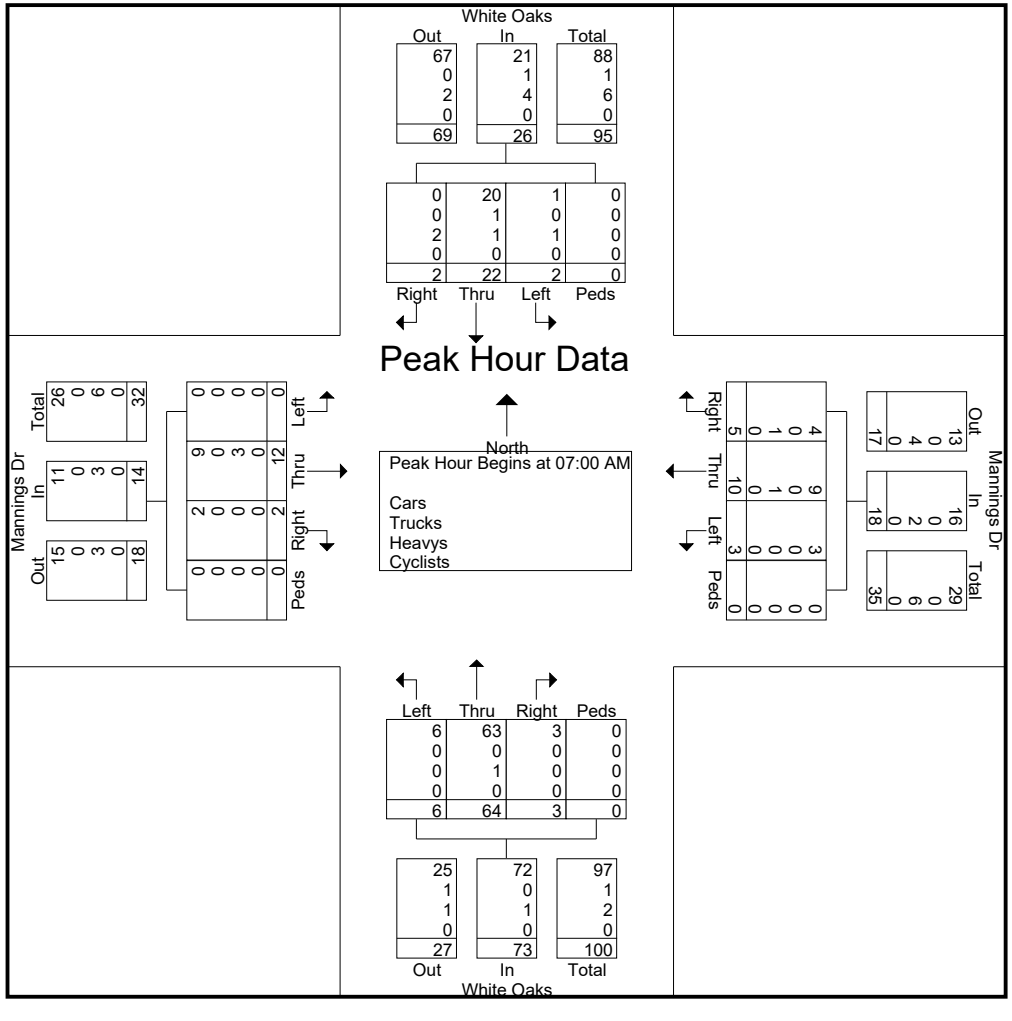
"We do not estimate...we count"

File Name : Manning Dr at White Oaks Rd
Site Code : 00000000
Start Date : 10/31/2017
Page No : 5



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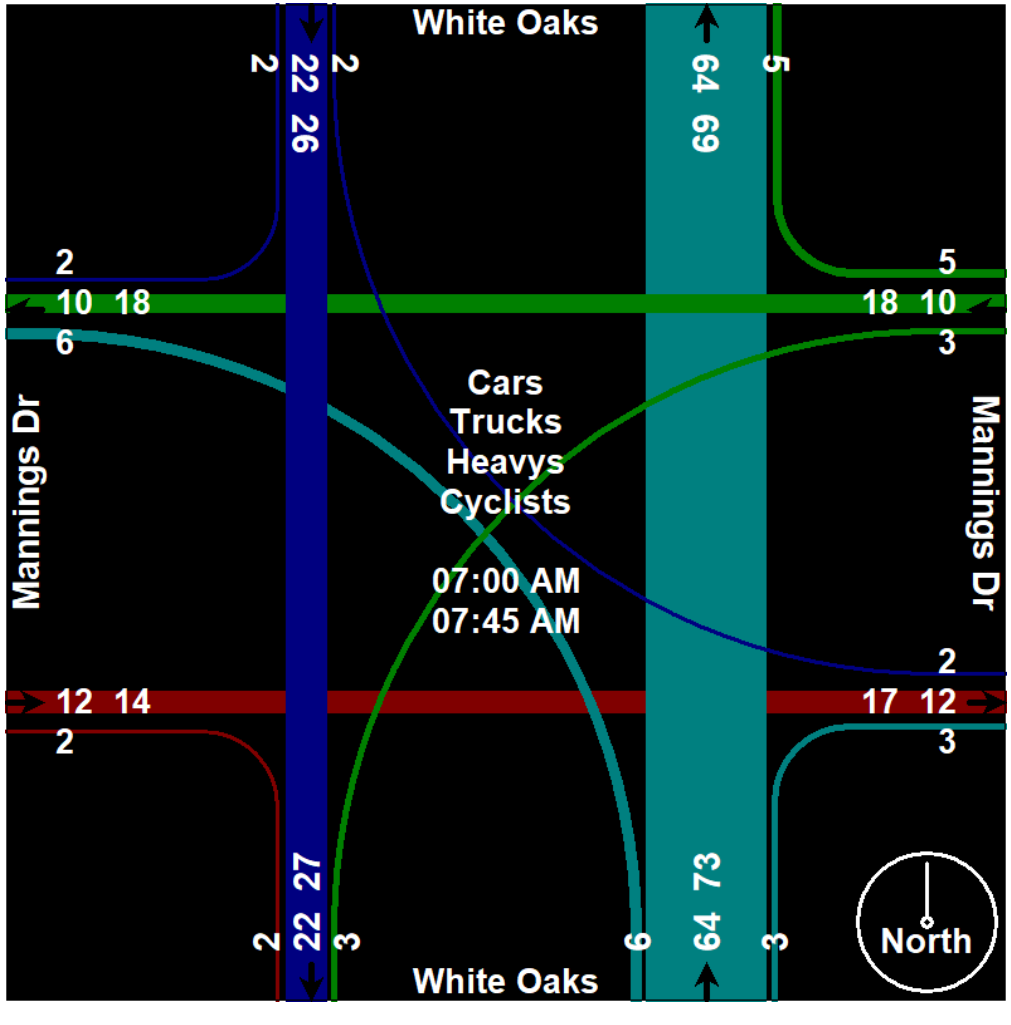
"We do not estimate...we count"

File Name : Manning Dr at White Oaks Rd
Site Code : 00000000
Start Date : 10/31/2017
Page No : 6



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318 Simonston Boulevard
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(416) 840-6619

"We do not estimate...we count"

File Name : Manning Dr at White Oaks Rd
Site Code : 00000000
Start Date : 10/31/2017

	White Oaks Southbound						Mannings Dr Westbound						White Oaks Northbound						Mannings Dr Eastbound						
Start Time	Right	Thru	Left	Uturns	Peds	App. Total	Right	Thru	Left	Uturns	Peds	App. Total	Right	Thru	Left	Uturns	Peds	App. Total	Right	Thru	Left	Uturns	Peds	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 12:45 PM																									
12:45 PM	**2**	5	**4**	0	0	11	1	**7**	**1**	0	0	9	0	**6**	0	0	0	**6**	0	6	0	0	0	6	32
01:00 PM	0	3	2	0	0	5	**6**	5	0	0	0	**11**	0	6	0	0	0	6	**1**	3	0	0	0	4	26
01:15 PM	0	**11**	4	0	0	**15**	6	3	0	**1**	0	10	0	3	0	0	0	3	1	8	0	0	0	9	**37**
01:30 PM	1	4	2	0	0	7	3	6	0	0	0	9	0	4	0	0	0	4	0	**9**	**2**	0	0	**11**	31
Total Volume	3	23	12	0	0	38	16	21	1	1	0	39	0	19	0	0	0	19	2	26	2	0	0	30	126
% App. Total	7.9	60.5	31.6	0	0		41	53.8	2.6	2.6	0		0	100	0	0	0		6.7	86.7	6.7	0	0		
PHF	.375	.523	.750	.000	.000	.633	.667	.750	.250	.250	.000	.886	.000	.792	.000	.000	.000	.792	.500	.722	.250	.000	.000	.682	.851
Cars	3	17	12	0	0	32	10	11	1	1	0	23	0	19	0	0	0	19	2	12	2	0	0	16	90
% Cars	100	73.9	100	0	0	84.2	62.5	52.4	100	100	0	59.0	0	100	0	0	0	100	100	46.2	100	0	0	53.3	71.4
Trucks	0	1	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2
% Trucks	0	4.3	0	0	0	2.6	6.3	0	0	0	0	2.6	0	0	0	0	0	0	0	0	0	0	0	0	1.6
Heavys	0	5	0	0	0	5	5	10	0	0	0	15	0	0	0	0	0	0	0	14	0	0	0	14	34
% Heavys	0	21.7	0	0	0	13.2	31.3	47.6	0	0	0	38.5	0	0	0	0	0	0	0	53.8	0	0	0	46.7	27.0
Cyclists	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Cyclists	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Horizon Data Services Ltd

318 Simonston Boulevard
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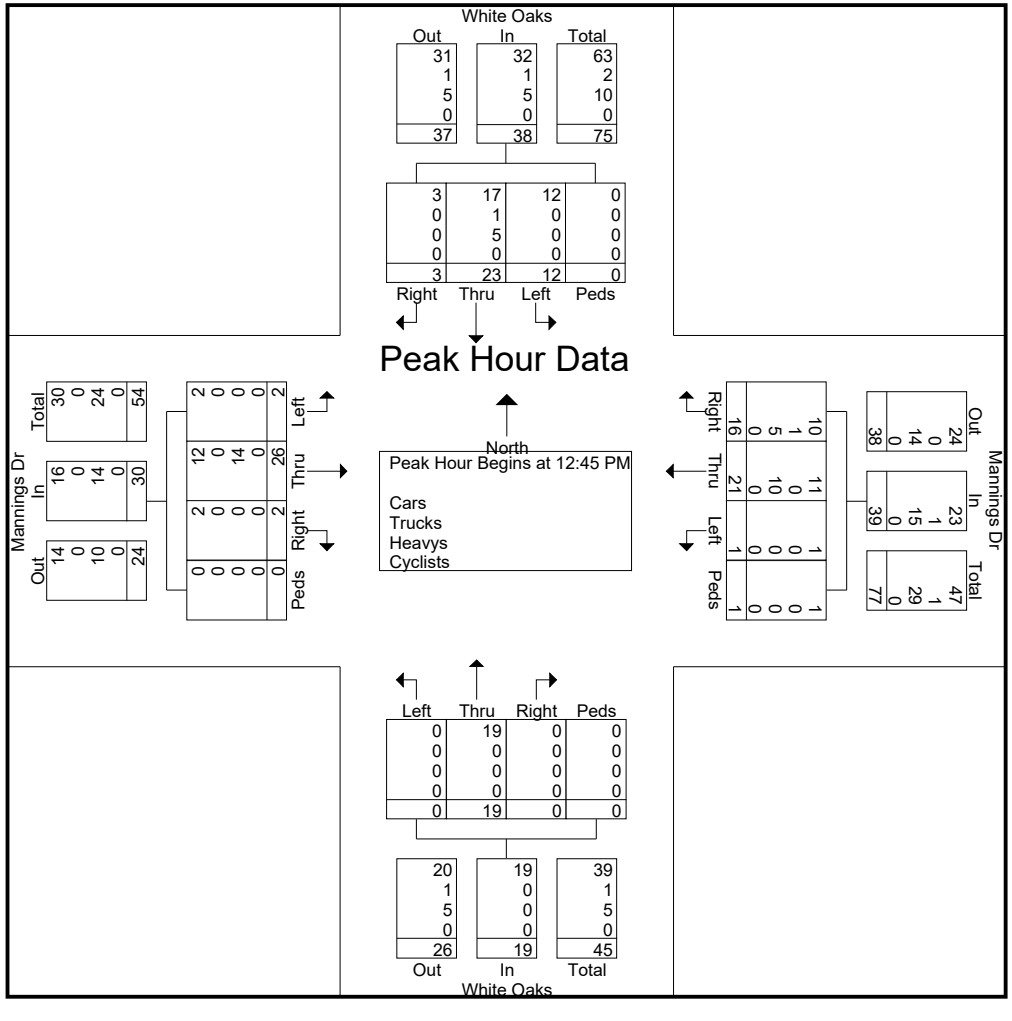
(416) 840-6619

"We do not estimate...we count"

File Name : Manning Dr at White Oaks Rd
Site Code : 00000000
Start Date : 10/31/2017
Page No : 8



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318 Simonston Boulevard
Thornhill ON L3T 4T5
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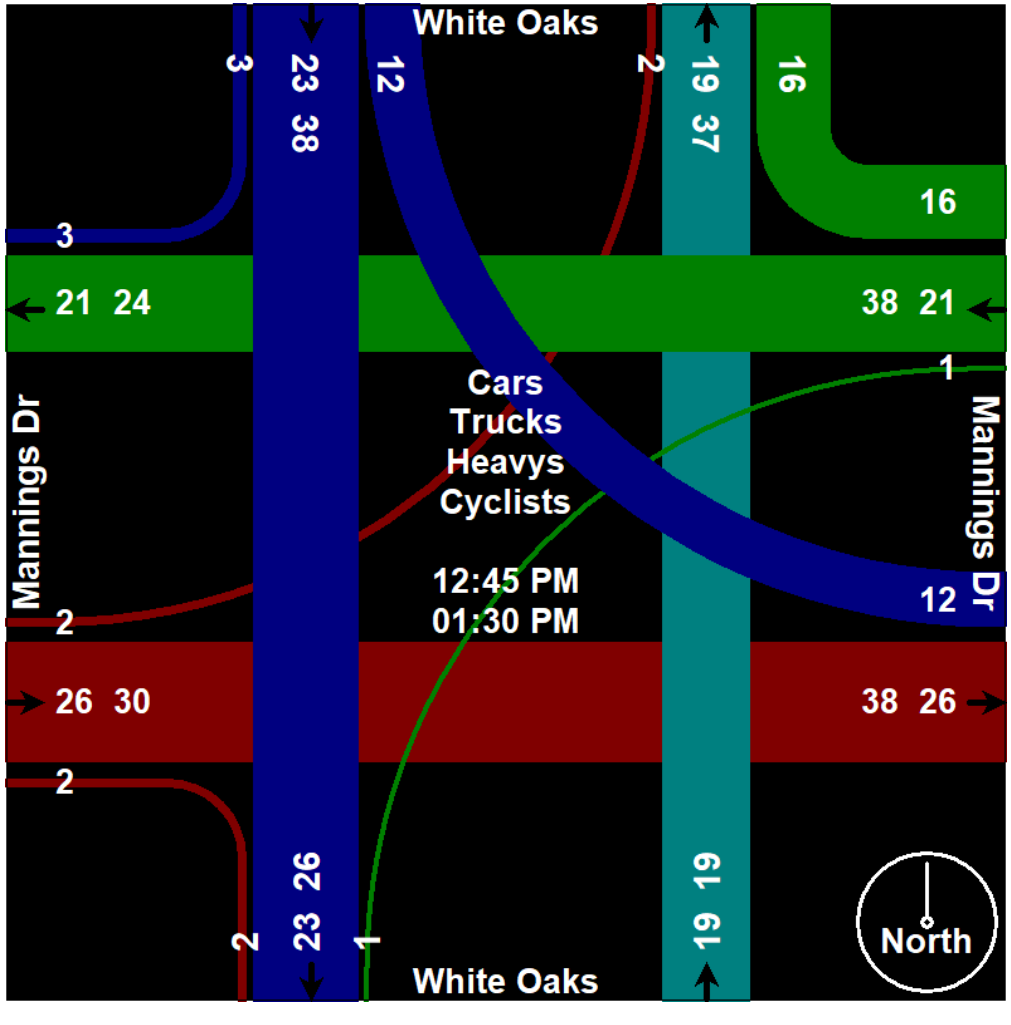
"We do not estimate...we count"

File Name : Manning Dr at White Oaks Rd
Site Code : 00000000
Start Date : 10/31/2017
Page No : 9



Horizon Data Services Ltd

318 Simonston Boulevard
Thornhill ON L3T 4T5
(416) 840-6619

"We do not estimate...we count"

File Name : Manning Dr at White Oaks Rd
Site Code : 00000000
Start Date : 10/31/2017

	White Oaks Southbound						Mannings Dr Westbound						White Oaks Northbound						Mannings Dr Eastbound						
Start Time	Right	Thru	Left	Uturns	Peds	App. Total	Right	Thru	Left	Uturns	Peds	App. Total	Right	Thru	Left	Uturns	Peds	App. Total	Right	Thru	Left	Uturns	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 04:00 PM																									
04:00 PM	0	18	3	0	0	21	**3**	**4**	0	0	0	**7**	0	9	0	0	0	9	0	**7**	0	0	0	**7**	**44**
04:15 PM	0	17	0	0	0	17	1	1	**1**	0	0	3	**1**	9	1	0	0	11	0	6	**1**	0	0	7	38
04:30 PM	0	**25**	**4**	0	0	**29**	0	0	0	0	0	0	0	7	1	0	0	8	0	2	0	0	0	2	39
04:45 PM	**1**	18	1	0	0	20	1	3	0	0	0	4	0	**12**	**2**	0	0	**14**	**1**	1	0	0	0	2	40
Total Volume	1	78	8	0	0	87	5	8	1	0	0	14	1	37	4	0	0	42	1	16	1	0	0	18	161
% App. Total	1.1	89.7	9.2	0	0		35.7	57.1	7.1	0	0		2.4	88.1	9.5	0	0		5.6	88.9	5.6	0	0		
PHF	.250	.780	.500	.000	.000	.750	.417	.500	.250	.000	.000	.500	.250	.771	.500	.000	.000	.750	.250	.571	.250	.000	.000	.643	.915
Cars	1	77	8	0	0	86	5	8	1	0	0	14	0	36	4	0	0	40	1	14	1	0	0	16	156
% Cars	100	98.7	100	0	0	98.9	100	100	100	0	0	100	0	97.3	100	0	0	95.2	100	87.5	100	0	0	88.9	96.9
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	2.7	0	0	0	2.4	0	0	0	0	0	0	0.6
Heavys	0	1	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	1	0	2	0	0	0	2	4
% Heavys	0	1.3	0	0	0	1.1	0	0	0	0	0	0	100	0	0	0	0	2.4	0	12.5	0	0	0	11.1	2.5
Cyclists	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Cyclists	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Horizon Data Services Ltd

318 Simonston Boulevard
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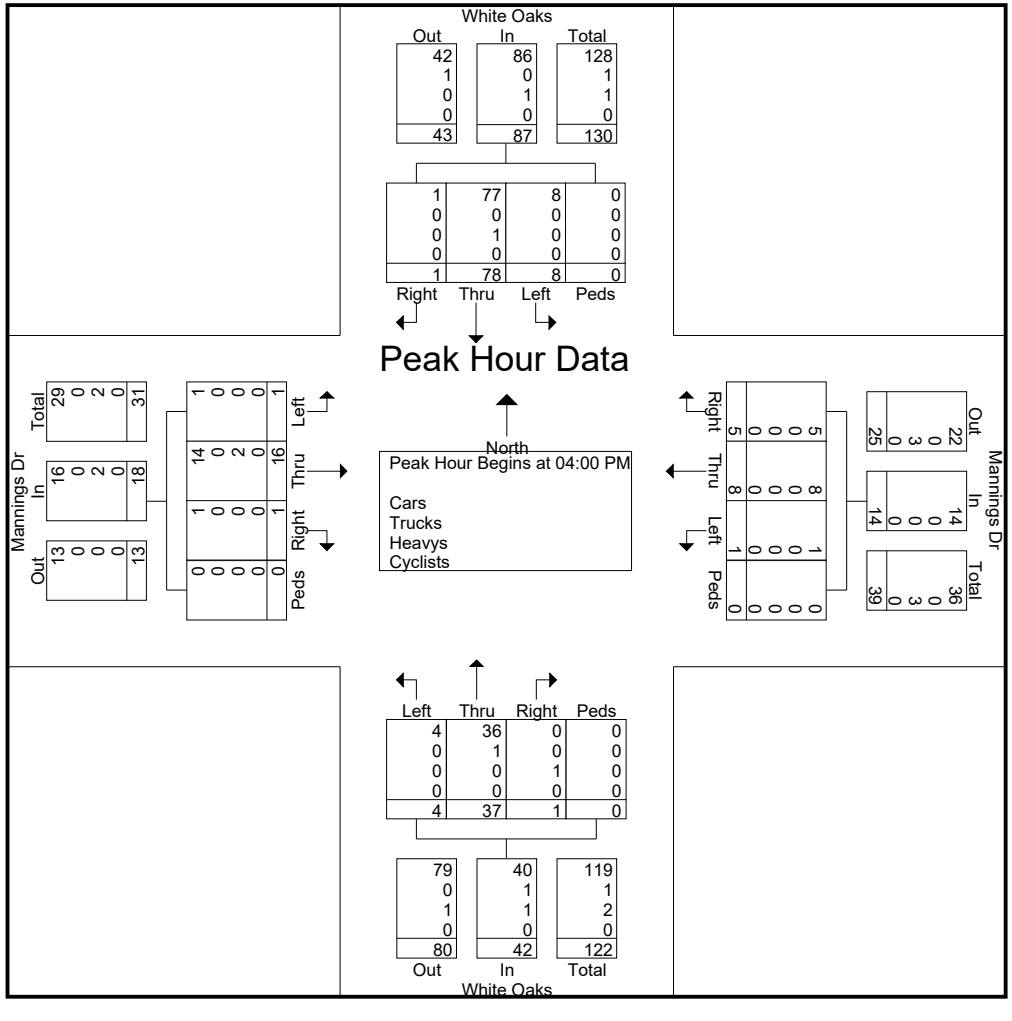
"We do not estimate...we count"

File Name : Manning Dr at White Oaks Rd
Site Code : 00000000
Start Date : 10/31/2017
Page No : 11



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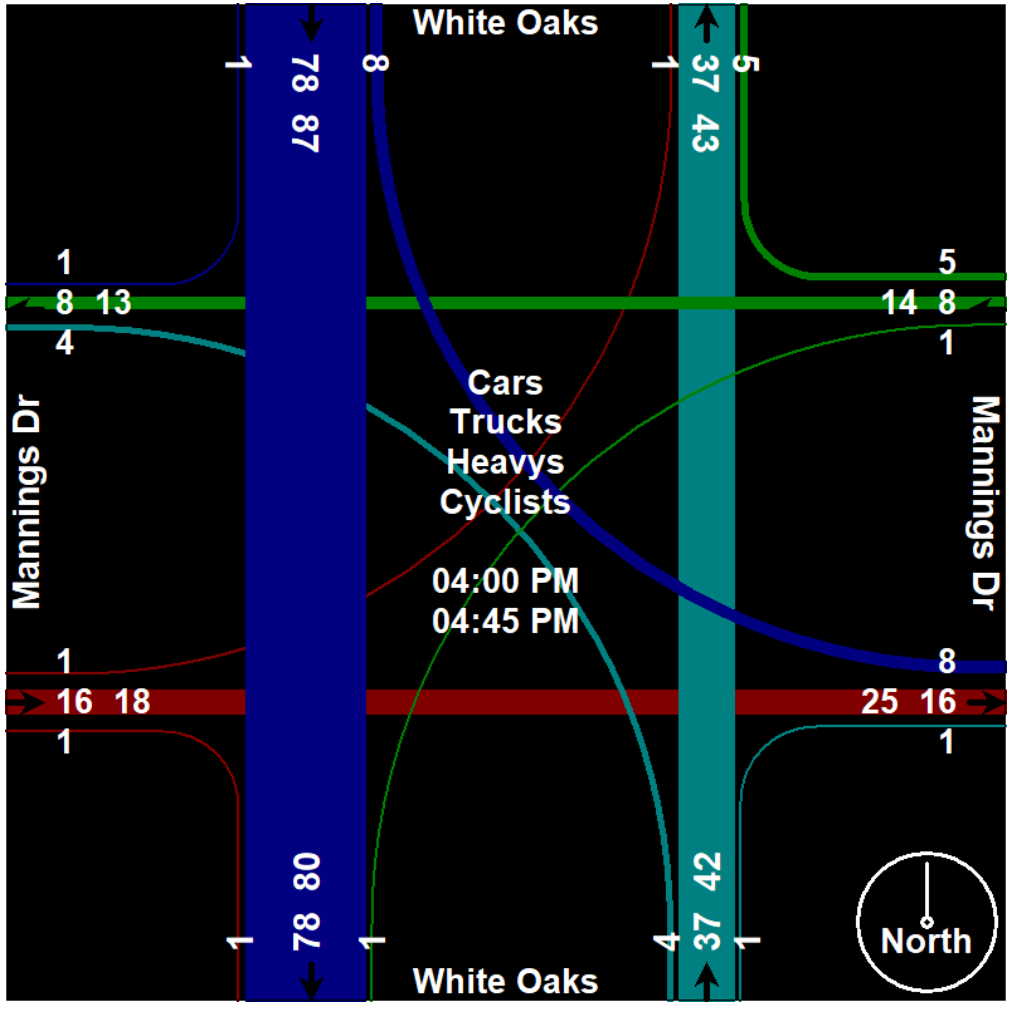
318 Simonston Boulevard
Thornhill ON L3T 4T5
(416) 840-6619

"We do not estimate...we count"

File Name : Manning Dr at White Oaks Rd
Site Code : 00000000
Start Date : 10/31/2017
Page No : 12



Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 10:00:00

One Hour Peak
From: 9:00:00
To: 10:00:00

Municipality: London
Site #: 1919400004
Intersection: Manning Dr & Driveway
TFR File #: 1
Count date: 5-Dec-19

Weather conditions:

Person counted:
Person prepared:
Person checked:

** Non-Signalized Intersection **

Major Road: Manning Dr runs W/E

North Leg Total: 4
North Entering: 3
North Peds: 0
Peds Cross: ⋈

Buses	0	0	0
Trucks	0	0	0
Cars	2	1	3
Totals	2	1	

Buses	0
Trucks	0
Cars	1
Totals	1

East Leg Total: 54
East Entering: 22
East Peds: 0
Peds Cross: ⧖

Buses	Trucks	Cars	Totals
0	11	12	23

Driveway

Cars	Trucks	Buses	Totals
1	0	0	1
10	11	0	21
11	11	0	

Manning Dr

N
W E
S

Buses	Trucks	Cars	Totals
0	0	0	0
0	19	12	31
0	19	12	

Manning Dr

Cars	Trucks	Buses	Totals
13	19	0	32

Peds Cross: ⧖
West Peds: 0
West Entering: 31
West Leg Total: 54

Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 15:45:00
To: 16:45:00

Municipality: London
Site #: 1919400004
Intersection: Manning Dr & Driveway
TFR File #: 1
Count date: 5-Dec-19

Weather conditions:

Person counted:
Person prepared:
Person checked:

** Non-Signalized Intersection **

Major Road: Manning Dr runs W/E

North Leg Total: 1
North Entering: 1
North Peds: 0
Peds Cross: ⋈

Buses	0	0	0
Trucks	0	0	0
Cars	1	0	1
Totals	1	0	

Buses	0
Trucks	0
Cars	0
Totals	0

East Leg Total: 48
East Entering: 19
East Peds: 0
Peds Cross: ⧖

Buses	Trucks	Cars	Totals
0	1	19	20

Manning Dr

Driveway

Cars	Trucks	Buses	Totals
0	0	0	0
18	1	0	19
18	1	0	

N
W E
S

Buses	Trucks	Cars	Totals
0	0	0	0
1	11	17	29
1	11	17	

Manning Dr

Cars	Trucks	Buses	Totals
17	11	1	29

Peds Cross: ⧖
West Peds: 0
West Entering: 29
West Leg Total: 49

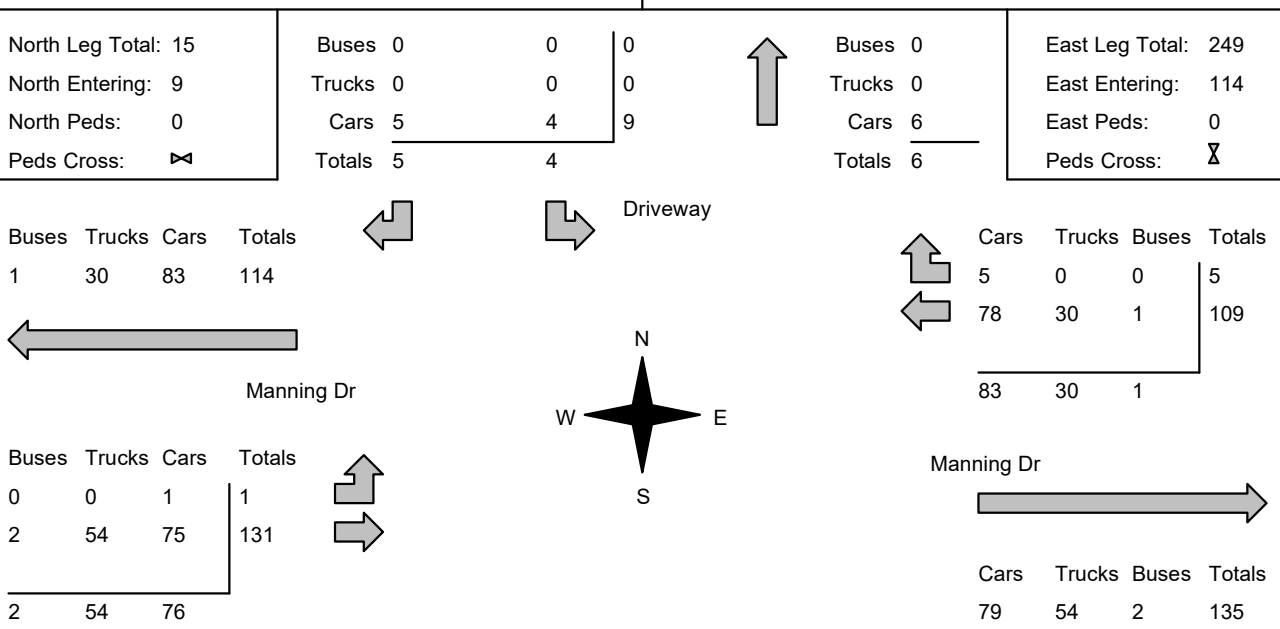
Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Total Count Diagram

Municipality: London Site #: 1919400004 Intersection: Manning Dr & Driveway TFR File #: 1 Count date: 5-Dec-19	Weather conditions: Person counted: Person prepared: Person checked:
** Non-Signalized Intersection **	Major Road: Manning Dr runs W/E



Peds Cross:
West Peds: 0
West Entering: 132
West Leg Total: 246

Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Traffic Count Summary

Intersection: Manning Dr & Driveway | Count Date: 5-Dec-19 | Municipality: London

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Buses				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0
8:00:00	0	0	0	0	0
9:00:00	1	0	2	3	0
10:00:00	1	0	2	3	0
15:00:00	0	0	0	0	0
16:00:00	2	0	1	3	0
17:00:00	0	0	0	0	0
18:00:00	0	0	0	0	0
Totals:	4	0	5	9	0

North/South Total Approaches: 9

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Buses				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0
8:00:00	0	0	0	0	0
9:00:00	0	0	0	0	0
10:00:00	0	0	0	0	0
15:00:00	0	0	0	0	0
16:00:00	0	0	0	0	0
17:00:00	0	0	0	0	0
18:00:00	0	0	0	0	0
S Totals:	0	0	0	0	0

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Buses				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0
8:00:00	0	18	3	21	0
9:00:00	0	22	1	23	0
10:00:00	0	21	1	22	0
15:00:00	0	0	0	0	0
16:00:00	0	16	0	16	0
17:00:00	0	22	0	22	0
18:00:00	0	10	0	10	0
Totals:	0	109	5	114	0

East/West Total Approaches: 246

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Buses				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0
8:00:00	1	18	0	19	0
9:00:00	0	15	0	15	0
10:00:00	0	31	0	31	0
15:00:00	0	0	0	0	0
16:00:00	0	23	0	23	0
17:00:00	0	21	0	21	0
18:00:00	0	23	0	23	0
W Totals:	1	131	0	132	0

Calculated Values for Traffic Crossing Major Street

Hours Ending:	7:00	8:00	9:00	10:00	15:00	16:00	17:00	18:00
Crossing Values:	0	0	1	1	0	2	0	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 5-Dec-19 Site #: 1919400004

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Buses - North Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15:00	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30:00	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45:00	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00:00	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15:00	2	1	0	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30:00	2	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45:00	2	0	0	0	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00:00	2	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15:00	2	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00:00	2	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15:00	3	1	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30:00	3	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45:00	4	1	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00:00	4	0	0	0	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15:00	4	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30:00	4	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45:00	4	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00:00	4	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15:00	4	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30:00	4	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45:00	4	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00:00	4	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:15:00	4	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:15:15	4	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 5-Dec-19 Site #: 1919400004

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Buses - East Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		East Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	0	0	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45:00	0	0	7	2	2	2	0	0	1	1	0	0	0	0	0	0	0	0	0	0
8:00:00	0	0	14	7	3	1	0	0	4	3	0	0	0	0	0	0	0	0	0	0
8:15:00	0	0	16	2	4	1	0	0	7	3	0	0	0	0	0	0	0	0	0	0
8:30:00	0	0	18	2	4	0	0	0	8	1	0	0	0	0	0	0	0	0	0	0
8:45:00	0	0	21	3	4	0	0	0	10	2	0	0	0	0	1	1	0	0	0	0
9:00:00	0	0	24	3	4	0	0	0	15	5	0	0	0	0	1	0	0	0	0	0
9:15:00	0	0	25	1	4	0	0	0	17	2	0	0	0	0	1	0	0	0	0	0
9:30:00	0	0	30	5	4	0	0	0	21	4	0	0	0	0	1	0	0	0	0	0
9:45:00	0	0	30	0	5	1	0	0	24	3	0	0	0	0	1	0	0	0	0	0
10:00:00	0	0	34	4	5	0	0	0	26	2	0	0	0	0	1	0	0	0	0	0
10:15:00	0	0	34	0	5	0	0	0	26	0	0	0	0	0	1	0	0	0	0	0
15:00:00	0	0	34	0	5	0	0	0	26	0	0	0	0	0	1	0	0	0	0	0
15:15:00	0	0	39	5	5	0	0	0	27	1	0	0	0	0	1	0	0	0	0	0
15:30:00	0	0	42	3	5	0	0	0	29	2	0	0	0	0	1	0	0	0	0	0
15:45:00	0	0	44	2	5	0	0	0	29	0	0	0	0	0	1	0	0	0	0	0
16:00:00	0	0	46	2	5	0	0	0	30	1	0	0	0	0	1	0	0	0	0	0
16:15:00	0	0	51	5	5	0	0	0	30	0	0	0	0	0	1	0	0	0	0	0
16:30:00	0	0	57	6	5	0	0	0	30	0	0	0	0	0	1	0	0	0	0	0
16:45:00	0	0	62	5	5	0	0	0	30	0	0	0	0	0	1	0	0	0	0	0
17:00:00	0	0	68	6	5	0	0	0	30	0	0	0	0	0	1	0	0	0	0	0
17:15:00	0	0	72	4	5	0	0	0	30	0	0	0	0	0	1	0	0	0	0	0
17:30:00	0	0	75	3	5	0	0	0	30	0	0	0	0	0	1	0	0	0	0	0
17:45:00	0	0	77	2	5	0	0	0	30	0	0	0	0	0	1	0	0	0	0	0
18:00:00	0	0	78	1	5	0	0	0	30	0	0	0	0	0	1	0	0	0	0	0
18:15:00	0	0	78	0	5	0	0	0	30	0	0	0	0	0	1	0	0	0	0	0
18:15:15	0	0	78	0	5	0	0	0	30	0	0	0	0	0	1	0	0	0	0	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 5-Dec-19 Site #: 1919400004

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Buses - South Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		South Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 5-Dec-19 Site #: 1919400004

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Buses - West Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		West Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	0	0	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45:00	0	0	9	6	0	0	0	0	2	2	0	0	0	0	1	1	0	0	0	0
8:00:00	1	1	13	4	0	0	0	0	4	2	0	0	0	0	1	0	0	0	0	0
8:15:00	1	0	15	2	0	0	0	0	5	1	0	0	0	0	1	0	0	0	0	0
8:30:00	1	0	16	1	0	0	0	0	8	3	0	0	0	0	1	0	0	0	0	0
8:45:00	1	0	19	3	0	0	0	0	9	1	0	0	0	0	1	0	0	0	0	0
9:00:00	1	0	20	1	0	0	0	0	12	3	0	0	0	0	1	0	0	0	0	0
9:15:00	1	0	23	3	0	0	0	0	15	3	0	0	0	0	1	0	0	0	0	0
9:30:00	1	0	25	2	0	0	0	0	18	3	0	0	0	0	1	0	0	0	0	0
9:45:00	1	0	28	3	0	0	0	0	22	4	0	0	0	0	1	0	0	0	0	0
10:00:00	1	0	32	4	0	0	0	0	31	9	0	0	0	0	1	0	0	0	0	0
10:15:00	1	0	32	0	0	0	0	0	31	0	0	0	0	0	1	0	0	0	0	0
15:00:00	1	0	32	0	0	0	0	0	31	0	0	0	0	0	1	0	0	0	0	0
15:15:00	1	0	35	3	0	0	0	0	32	1	0	0	0	0	1	0	0	0	0	0
15:30:00	1	0	37	2	0	0	0	0	33	1	0	0	0	0	1	0	0	0	0	0
15:45:00	1	0	39	2	0	0	0	0	36	3	0	0	0	0	1	0	0	0	0	0
16:00:00	1	0	43	4	0	0	0	0	42	6	0	0	0	0	2	1	0	0	0	0
16:15:00	1	0	46	3	0	0	0	0	44	2	0	0	0	0	2	0	0	0	0	0
16:30:00	1	0	49	3	0	0	0	0	47	3	0	0	0	0	2	0	0	0	0	0
16:45:00	1	0	56	7	0	0	0	0	47	0	0	0	0	0	2	0	0	0	0	0
17:00:00	1	0	59	3	0	0	0	0	47	0	0	0	0	0	2	0	0	0	0	0
17:15:00	1	0	66	7	0	0	0	0	50	3	0	0	0	0	2	0	0	0	0	0
17:30:00	1	0	69	3	0	0	0	0	53	3	0	0	0	0	2	0	0	0	0	0
17:45:00	1	0	72	3	0	0	0	0	54	1	0	0	0	0	2	0	0	0	0	0
18:00:00	1	0	75	3	0	0	0	0	54	0	0	0	0	0	2	0	0	0	0	0
18:15:00	1	0	75	0	0	0	0	0	54	0	0	0	0	0	2	0	0	0	0	0
18:15:15	1	0	75	0	0	0	0	0	54	0	0	0	0	0	2	0	0	0	0	0

Horizon Data Services Ltd

318 Simonston Boulevard
Thornhill ON L3T 4T5
(416) 840-6619

"We do not estimate...we count"

File Name : Manning Dr at Primary Landfill Access
Site Code : 00000000
Start Date : 10/31/2017
Page No : 1

Groups Printed- Cars - Trucks - Heavys - Cyclists

	Primary Landfill Access Southbound						Mannings Dr Westbound						Northbound						Mannings Dr Eastbound						
Start Time	Right	Thru	Left	Uturns	Peds	App. Total	Right	Thru	Left	Uturns	Peds	App. Total	Right	Thru	Left	Uturns	Peds	App. Total	Right	Thru	Left	Uturns	Peds	App. Total	Int. Total
07:00 AM	1	0	0	0	0	1	5	4	0	0	0	9	0	0	0	0	0	0	0	5	3	0	0	8	18
07:15 AM	1	0	4	0	0	5	2	4	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	11
07:30 AM	1	0	2	0	0	3	3	2	0	0	0	5	0	0	0	0	0	0	0	2	2	0	0	4	12
07:45 AM	0	0	3	0	0	3	6	4	0	0	0	10	0	0	0	0	0	0	0	1	3	0	0	4	17
Total	3	0	9	0	0	12	16	14	0	0	0	30	0	0	0	0	0	0	0	8	8	0	0	16	58
08:00 AM	1	0	2	0	0	3	3	1	0	0	0	4	0	0	0	0	0	0	0	0	1	0	0	1	8
08:15 AM	3	0	5	0	0	8	4	1	0	0	0	5	0	0	0	0	0	0	0	1	2	0	0	3	16
08:30 AM	1	0	3	0	0	4	5	2	0	0	0	7	0	0	0	0	0	0	0	2	8	0	0	10	21
08:45 AM	5	0	5	0	0	10	6	4	0	0	0	10	0	0	0	0	0	0	0	0	7	0	0	7	27
Total	10	0	15	0	0	25	18	8	0	0	0	26	0	0	0	0	0	0	0	3	18	0	0	21	72
11:00 AM	3	0	11	0	0	14	7	1	0	0	0	8	0	0	0	0	0	0	0	4	8	0	0	12	34
11:15 AM	9	0	5	0	0	14	8	3	0	0	0	11	0	0	0	0	0	0	0	5	3	0	0	8	33
11:30 AM	2	0	13	0	0	15	9	4	0	0	0	13	0	0	0	0	0	0	0	3	5	0	0	8	36
11:45 AM	2	0	4	0	0	6	8	2	0	0	0	10	0	0	0	0	0	0	0	5	4	0	0	9	25
Total	16	0	33	0	0	49	32	10	0	0	0	42	0	0	0	0	0	0	0	17	20	0	0	37	128
12:00 PM	3	0	2	0	0	5	4	1	0	0	0	5	0	0	0	0	0	0	0	3	4	0	0	7	17
12:15 PM	1	0	8	0	0	9	3	4	0	0	0	7	0	0	0	0	0	0	0	3	6	0	0	9	25
12:30 PM	5	0	5	0	0	10	9	0	0	0	0	9	0	0	0	0	0	0	0	1	12	0	0	13	32
12:45 PM	5	0	3	0	0	8	5	5	0	0	0	10	0	0	0	0	0	0	0	3	4	0	0	7	25
Total	14	0	18	0	0	32	21	10	0	0	0	31	0	0	0	0	0	0	0	10	26	0	0	36	99
01:00 PM	5	0	10	0	0	15	5	3	0	0	0	8	0	0	0	0	0	0	0	4	4	0	0	8	31
01:15 PM	4	0	2	1	0	7	7	3	0	0	0	10	0	0	0	0	0	0	0	2	8	0	0	10	27
01:30 PM	5	0	7	0	0	12	4	3	0	0	0	7	0	0	0	0	0	0	0	8	6	0	0	14	33
01:45 PM	5	0	2	0	0	7	7	1	0	0	0	8	0	0	0	0	0	0	0	7	5	0	0	12	27
Total	19	0	21	1	0	41	23	10	0	0	0	33	0	0	0	0	0	0	0	21	23	0	0	44	118
03:00 PM	7	0	5	1	0	13	2	4	0	0	0	6	0	0	0	0	0	0	0	3	4	0	0	7	26

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"We do not estimate...we count"

File Name : Manning Dr at Primary Landfill Access
Site Code : 00000000
Start Date : 10/31/2017
Page No : 2

Groups Printed- Cars - Trucks - Heavys - Cyclists

	Primary Landfill Access Southbound						Mannings Dr Westbound						Northbound						Mannings Dr Eastbound						
Start Time	Right	Thru	Left	Uturns	Peds	App. Total	Right	Thru	Left	Uturns	Peds	App. Total	Right	Thru	Left	Uturns	Peds	App. Total	Right	Thru	Left	Uturns	Peds	App. Total	Int. Total
03:15 PM	3	0	2	0	0	5	4	3	0	0	0	7	0	0	0	0	0	0	0	5	1	0	0	6	18
03:30 PM	2	0	6	0	0	8	4	1	0	0	0	5	0	0	0	0	0	0	0	3	3	0	0	6	19
03:45 PM	2	0	3	0	0	5	1	4	0	0	0	5	0	0	0	0	0	0	0	4	0	0	0	4	14
Total	14	0	16	1	0	31	11	12	0	0	0	23	0	0	0	0	0	0	0	15	8	0	0	23	77
04:00 PM	1	0	8	0	0	9	1	5	0	0	0	6	0	0	0	0	0	0	0	8	0	1	0	9	24
04:15 PM	1	0	0	0	0	1	0	2	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	8
04:30 PM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	6	0	0	0	6	7
04:45 PM	3	0	1	0	0	4	0	2	0	0	0	2	0	0	0	0	0	0	0	4	0	0	0	4	10
Total	5	0	9	0	0	14	1	10	0	0	0	11	0	0	0	0	0	0	0	23	0	1	0	24	49
05:00 PM	0	0	0	0	0	0	0	3	0	0	0	3	0	0	0	0	0	0	0	3	0	0	0	3	6
05:15 PM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	4	0	0	0	4	5
05:30 PM	0	0	0	0	0	0	0	4	0	0	0	4	0	0	0	0	0	0	0	4	0	0	0	4	8
05:45 PM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	2
Total	0	0	0	0	0	0	0	9	0	0	0	9	0	0	0	0	0	0	0	12	0	0	0	12	21
Grand Total	81	0	121	2	0	204	122	83	0	0	0	205	0	0	0	0	0	0	0	109	103	1	0	213	622
Apprch %	39.7	0	59.3	1	0		59.5	40.5	0	0	0		0	0	0	0	0		0	51.2	48.4	0.5	0		
Total %	13	0	19.5	0.3	0	32.8	19.6	13.3	0	0	0	33	0	0	0	0	0	0	0	17.5	16.6	0.2	0	34.2	
Cars	27	0	46	0	0	73	60	78	0	0	0	138	0	0	0	0	0	0	0	96	49	1	0	146	357
% Cars	33.3	0	38	0	0	35.8	49.2	94	0	0	0	67.3	0	0	0	0	0	0	0	88.1	47.6	100	0	68.5	57.4
Trucks	0	0	4	0	0	4	4	1	0	0	0	5	0	0	0	0	0	0	0	3	0	0	0	3	12
% Trucks	0	0	3.3	0	0	2	3.3	1.2	0	0	0	2.4	0	0	0	0	0	0	0	2.8	0	0	0	1.4	1.9
Heavys	54	0	71	2	0	127	58	4	0	0	0	62	0	0	0	0	0	0	0	10	54	0	0	64	253
% Heavys	66.7	0	58.7	100	0	62.3	47.5	4.8	0	0	0	30.2	0	0	0	0	0	0	0	9.2	52.4	0	0	30	40.7
Cyclists	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Cyclists	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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File Name : Manning Dr at Primary Landfill Access
Site Code : 00000000
Start Date : 10/31/2017
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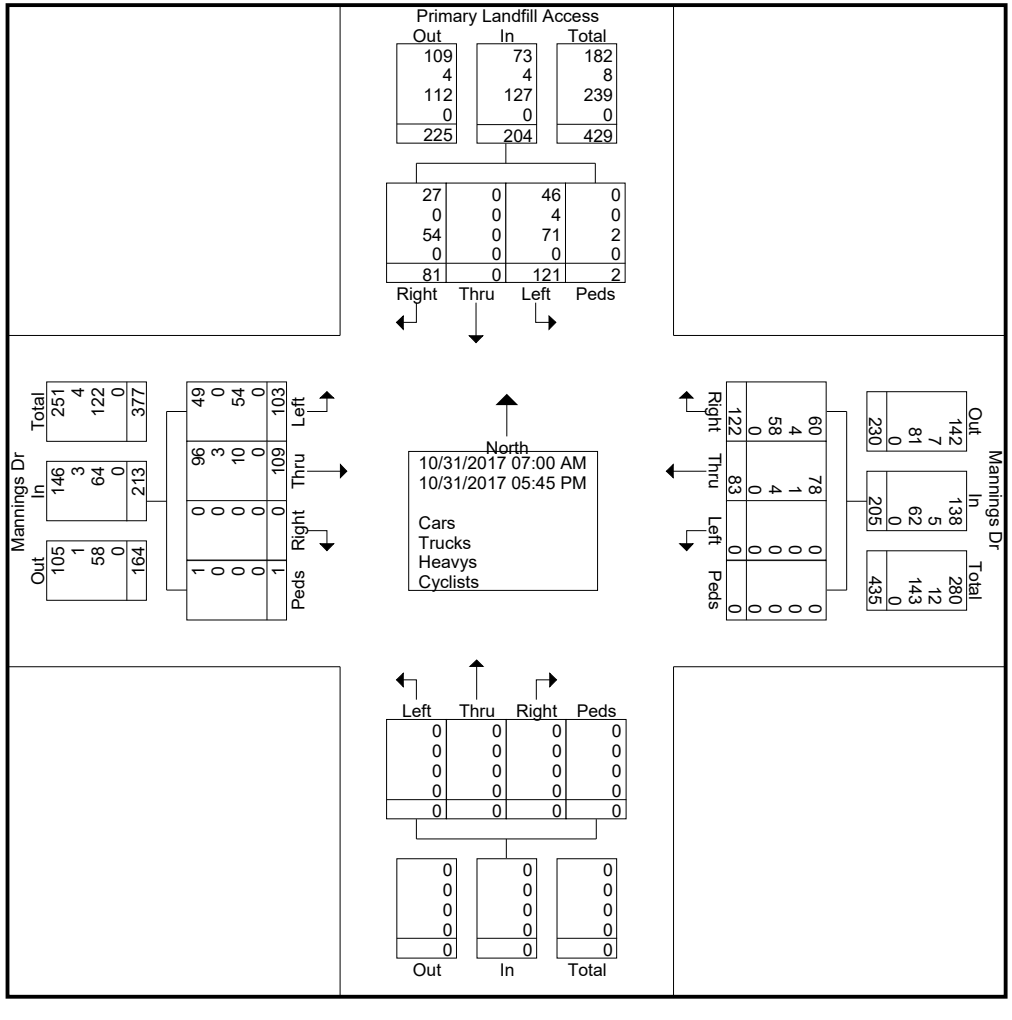

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"We do not estimate...we count"

File Name : Manning Dr at Primary Landfill Access
Site Code : 00000000
Start Date : 10/31/2017
Page No : 4

	Primary Landfill Access Southbound						Mannings Dr Westbound						Northbound						Mannings Dr Eastbound						
Start Time	Right	Thru	Left	Uturns	Peds	App. Total	Right	Thru	Left	Uturns	Peds	App. Total	Right	Thru	Left	Uturns	Peds	App. Total	Right	Thru	Left	Uturns	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 08:00 AM																									
08:00 AM	1	0	2	0	0	3	3	1	0	0	0	4	0	0	0	0	0	0	0	0	1	0	0	1	8
08:15 AM	3	0	**5**	0	0	8	4	1	0	0	0	5	0	0	0	0	0	0	0	1	2	0	0	3	16
08:30 AM	1	0	3	0	0	4	5	2	0	0	0	7	0	0	0	0	0	0	0	**2**	**8**	0	0	**10**	21
08:45 AM	**5**	0	5	0	0	**10**	**6**	**4**	0	0	0	**10**	0	0	0	0	0	0	0	0	7	0	0	7	**27**
Total Volume	10	0	15	0	0	25	18	8	0	0	0	26	0	0	0	0	0	0	0	3	18	0	0	21	72
% App. Total	40	0	60	0	0		69.2	30.8	0	0	0		0	0	0	0	0		0	14.3	85.7	0	0		
PHF	.500	.000	.750	.000	.000	.625	.750	.500	.000	.000	.000	.650	.000	.000	.000	.000	.000	.000	.000	.375	.563	.000	.000	.525	.667
Cars	3	0	5	0	0	8	5	8	0	0	0	13	0	0	0	0	0	0	0	2	10	0	0	12	33
% Cars	30.0	0	33.3	0	0	32.0	27.8	100	0	0	0	50.0	0	0	0	0	0	0	0	66.7	55.6	0	0	57.1	45.8
Trucks	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
% Trucks	0	0	0	0	0	0	5.6	0	0	0	0	3.8	0	0	0	0	0	0	0	0	0	0	0	0	1.4
Heavys	7	0	10	0	0	17	12	0	0	0	0	12	0	0	0	0	0	0	0	1	8	0	0	9	38
% Heavys	70.0	0	66.7	0	0	68.0	66.7	0	0	0	0	46.2	0	0	0	0	0	0	0	33.3	44.4	0	0	42.9	52.8
Cyclists	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Cyclists	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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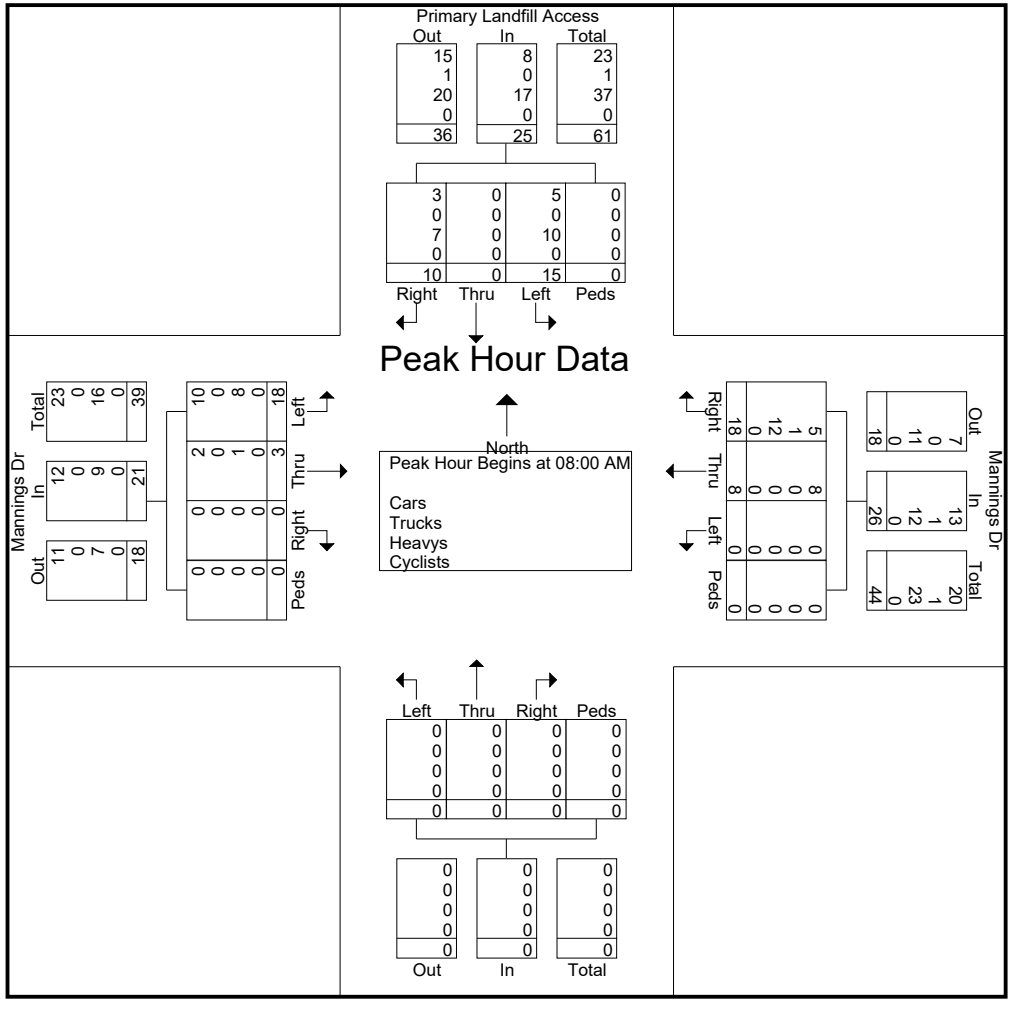
"We do not estimate...we count"

File Name : Manning Dr at Primary Landfill Access
Site Code : 00000000
Start Date : 10/31/2017
Page No : 5



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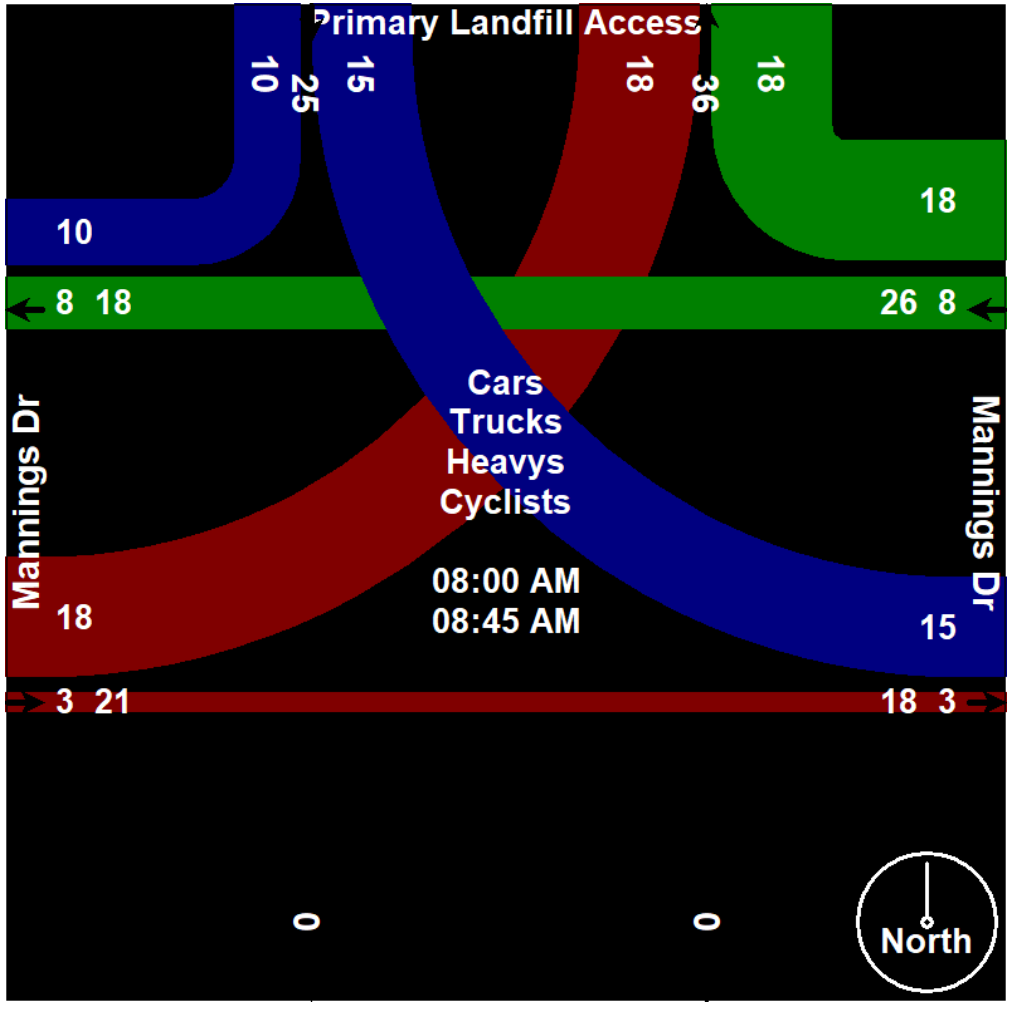
File Name : Manning Dr at Primary Landfill Access
Site Code : 00000000
Start Date : 10/31/2017
Page No : 6



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File Name : Manning Dr at Primary Landfill Access
Site Code : 00000000
Start Date : 10/31/2017
Page No : 7

	Primary Landfill Access Southbound						Mannings Dr Westbound						Northbound						Mannings Dr Eastbound						
Start Time	Right	Thru	Left	Uturns	Peds	App. Total	Right	Thru	Left	Uturns	Peds	App. Total	Right	Thru	Left	Uturns	Peds	App. Total	Right	Thru	Left	Uturns	Peds	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 11:00 AM																									
11:00 AM	3	0	11	0	0	14	7	1	0	0	0	8	0	0	0	0	0	0	0	4	**8**	0	0	**12**	34
11:15 AM	**9**	0	5	0	0	14	8	3	0	0	0	11	0	0	0	0	0	0	0	**5**	3	0	0	8	33
11:30 AM	2	0	**13**	0	0	**15**	**9**	**4**	0	0	0	**13**	0	0	0	0	0	0	0	3	5	0	0	8	**36**
11:45 AM	2	0	4	0	0	6	8	2	0	0	0	10	0	0	0	0	0	0	0	5	4	0	0	9	25
Total Volume	16	0	33	0	0	49	32	10	0	0	0	42	0	0	0	0	0	0	0	17	20	0	0	37	128
% App. Total	32.7	0	67.3	0	0		76.2	23.8	0	0	0		0	0	0	0	0		0	45.9	54.1	0	0		
PHF	.444	.000	.635	.000	.000	.817	.889	.625	.000	.000	.000	.808	.000	.000	.000	.000	.000	.000	.000	.850	.625	.000	.000	.771	.889
Cars	2	0	8	0	0	10	14	10	0	0	0	24	0	0	0	0	0	0	0	16	6	0	0	22	56
% Cars	12.5	0	24.2	0	0	20.4	43.8	100	0	0	0	57.1	0	0	0	0	0	0	0	94.1	30.0	0	0	59.5	43.8
Trucks	0	0	3	0	0	3	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	5
% Trucks	0	0	9.1	0	0	6.1	6.3	0	0	0	0	4.8	0	0	0	0	0	0	0	0	0	0	0	0	3.9
Heavys	14	0	22	0	0	36	16	0	0	0	0	16	0	0	0	0	0	0	0	1	14	0	0	15	67
% Heavys	87.5	0	66.7	0	0	73.5	50.0	0	0	0	0	38.1	0	0	0	0	0	0	0	5.9	70.0	0	0	40.5	52.3
Cyclists	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Cyclists	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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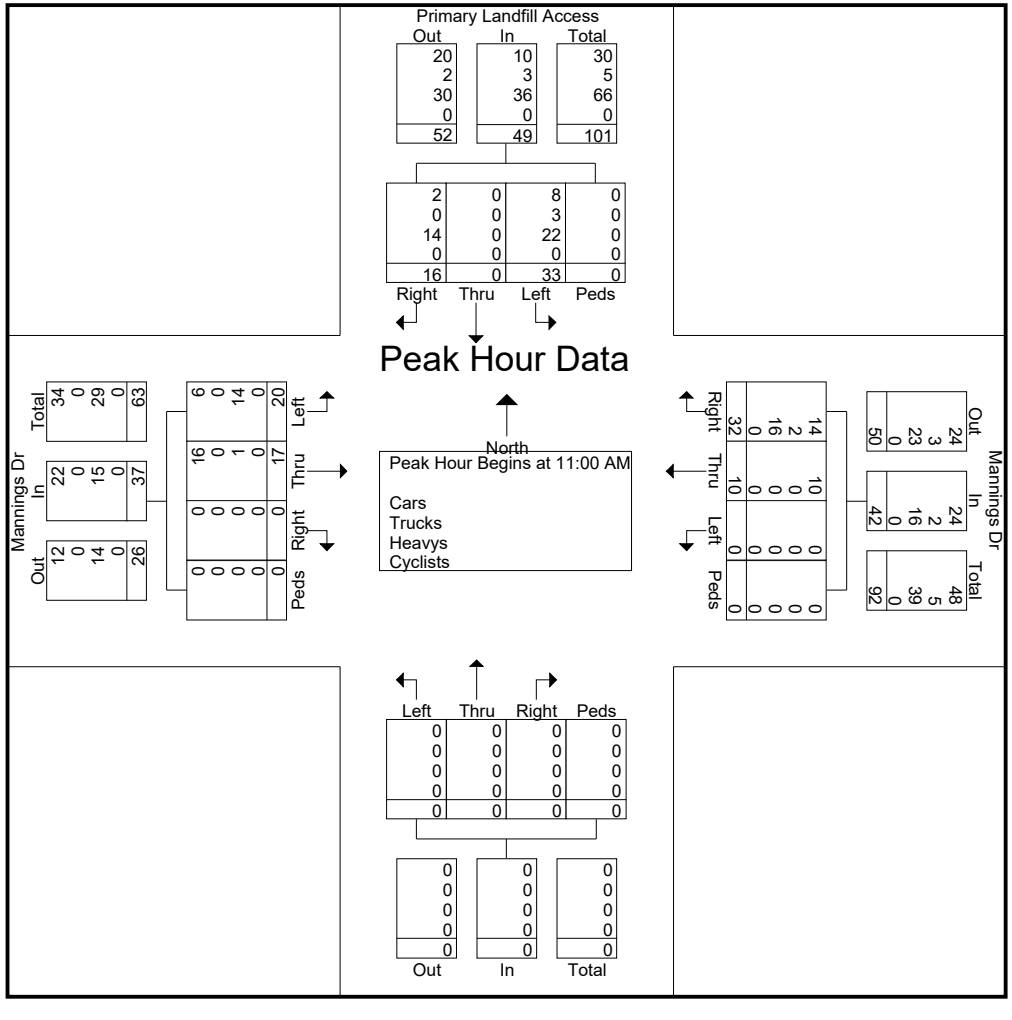
"We do not estimate...we count"

File Name : Manning Dr at Primary Landfill Access
Site Code : 00000000
Start Date : 10/31/2017
Page No : 8



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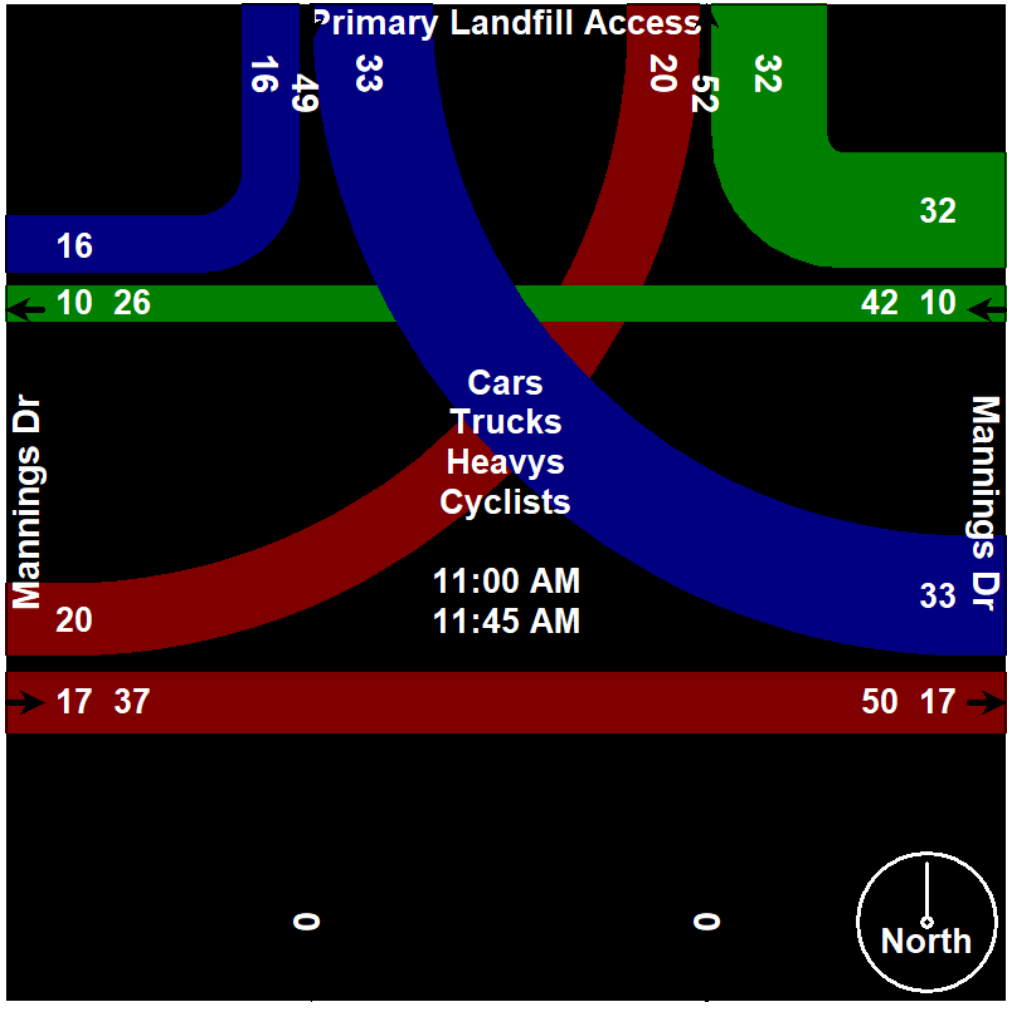
"We do not estimate...we count"

File Name : Manning Dr at Primary Landfill Access
Site Code : 00000000
Start Date : 10/31/2017
Page No : 9



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"We do not estimate...we count"

File Name : Manning Dr at Primary Landfill Access
Site Code : 00000000
Start Date : 10/31/2017
Page No : 10

	Primary Landfill Access Southbound						Mannings Dr Westbound						Northbound						Mannings Dr Eastbound						
Start Time	Right	Thru	Left	Uturns	Peds	App. Total	Right	Thru	Left	Uturns	Peds	App. Total	Right	Thru	Left	Uturns	Peds	App. Total	Right	Thru	Left	Uturns	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 03:00 PM																									
03:00 PM	**7**	0	5	**1**	0	**13**	2	**4**	0	0	0	6	0	0	0	0	0	0	0	3	**4**	0	0	**7**	**26**
03:15 PM	3	0	2	0	0	5	**4**	3	0	0	0	**7**	0	0	0	0	0	0	0	**5**	1	0	0	6	18
03:30 PM	2	0	**6**	0	0	8	4	1	0	0	0	5	0	0	0	0	0	0	0	3	3	0	0	6	19
03:45 PM	2	0	3	0	0	5	1	4	0	0	0	5	0	0	0	0	0	0	0	4	0	0	0	4	14
Total Volume	14	0	16	1	0	31	11	12	0	0	0	23	0	0	0	0	0	0	0	15	8	0	0	23	77
% App. Total	45.2	0	51.6	3.2	0		47.8	52.2	0	0	0		0	0	0	0	0		0	65.2	34.8	0	0		
PHF	.500	.000	.667	.250	.000	.596	.688	.750	.000	.000	.000	.821	.000	.000	.000	.000	.000	.000	.000	.750	.500	.000	.000	.821	.740
Cars	6	0	12	0	0	18	11	12	0	0	0	23	0	0	0	0	0	0	0	13	5	0	0	18	59
% Cars	42.9	0	75.0	0	0	58.1	100	100	0	0	0	100	0	0	0	0	0	0	0	86.7	62.5	0	0	78.3	76.6
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Heavys	8	0	4	1	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3	0	0	5	18
% Heavys	57.1	0	25.0	100	0	41.9	0	0	0	0	0	0	0	0	0	0	0	0	0	13.3	37.5	0	0	21.7	23.4
Cyclists	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Cyclists	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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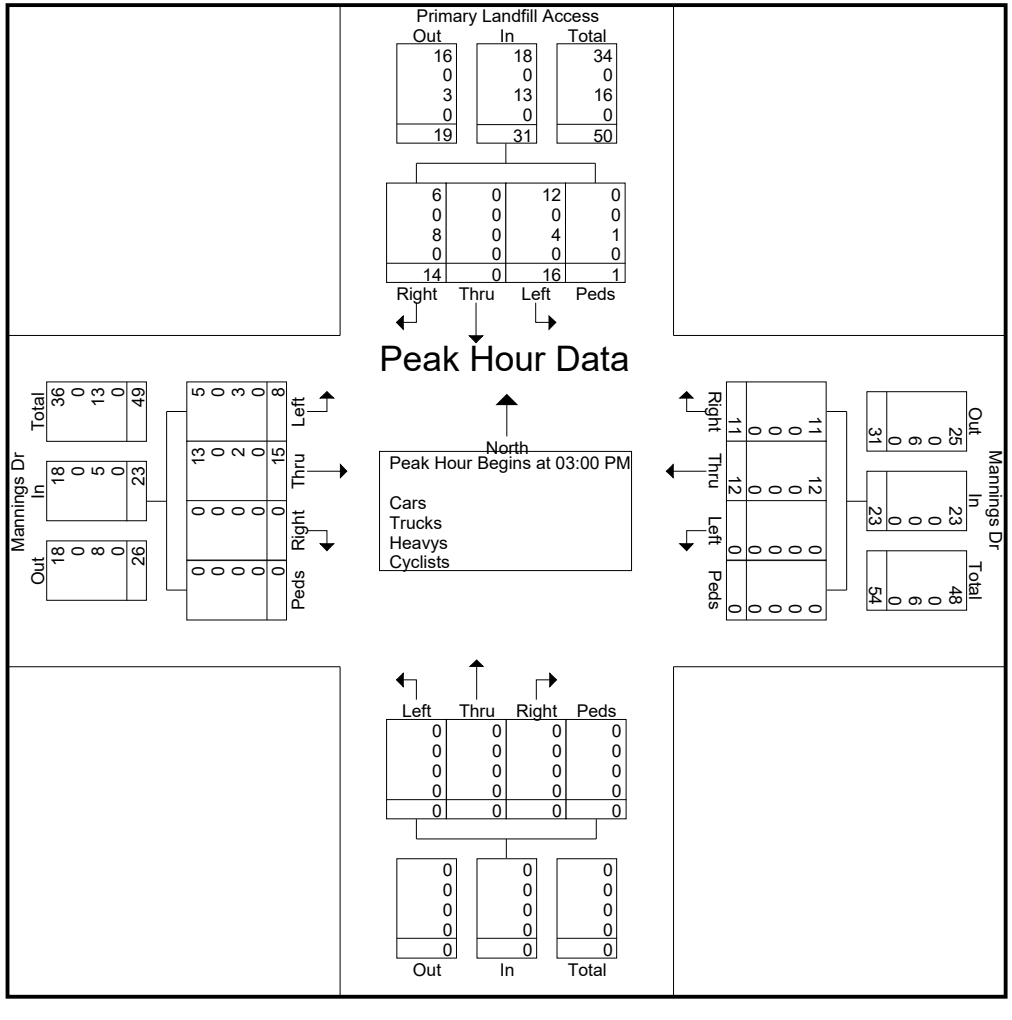
"We do not estimate...we count"

File Name : Manning Dr at Primary Landfill Access
Site Code : 00000000
Start Date : 10/31/2017
Page No : 11



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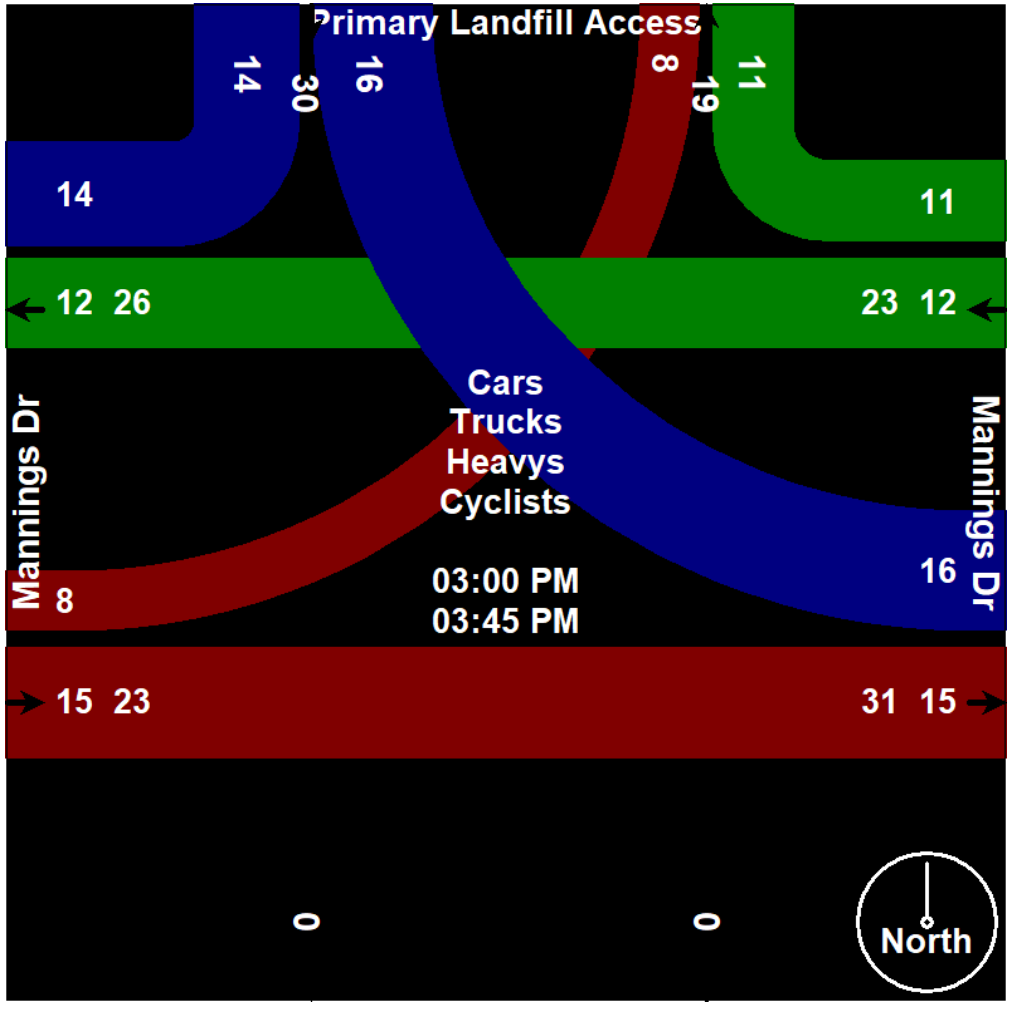
"We do not estimate...we count"

File Name : Manning Dr at Primary Landfill Access
Site Code : 00000000
Start Date : 10/31/2017
Page No : 12



Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 10:00:00

One Hour Peak
From: 9:00:00
To: 10:00:00

Municipality: London
Site #: 1919400003
Intersection: Manning Dr & Driveway
TFR File #: 1
Count date: 5-Dec-19

Weather conditions:

Person counted:
Person prepared:
Person checked:

** Non-Signalized Intersection **

Major Road: Manning Dr runs W/E

North Leg Total: 9
North Entering: 3
North Peds: 0
Peds Cross: ⋈

Buses	0	0	0
Trucks	0	0	0
Cars	2	1	3
Totals	2	1	

Buses	0
Trucks	0
Cars	6
Totals	6

East Leg Total: 61
East Entering: 32
East Peds: 0
Peds Cross: ⧖

Buses	Trucks	Cars	Totals
0	18	14	32

Driveway

Cars	Trucks	Buses	Totals
2	0	0	2
12	18	0	30
14	18	0	

Manning Dr

N
W E
S

Buses	Trucks	Cars	Totals
0	0	4	4
0	20	8	28
0	20	12	

Manning Dr

Cars	Trucks	Buses	Totals
9	20	0	29

Peds Cross: ⧖
West Peds: 0
West Entering: 32
West Leg Total: 64

Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 16:15:00
To: 17:15:00

Municipality: London
Site #: 1919400003
Intersection: Manning Dr & Driveway
TFR File #: 1
Count date: 5-Dec-19

Weather conditions:

Person counted:
Person prepared:
Person checked:

** Non-Signalized Intersection **

Major Road: Manning Dr runs W/E

North Leg Total: 16
North Entering: 14
North Peds: 0
Peds Cross: ⋈

Buses	0	0	0
Trucks	0	0	0
Cars	7	7	14
Totals	7	7	

Buses	0
Trucks	0
Cars	2
Totals	2

East Leg Total: 52
East Entering: 13
East Peds: 0
Peds Cross: ⧖

Buses	Trucks	Cars	Totals
0	0	18	18

Manning Dr

Driveway

Cars	Trucks	Buses	Totals
2	0	0	2
11	0	0	11
13	0	0	

N
W E
S

Buses	Trucks	Cars	Totals
0	0	0	0
0	6	26	32
0	6	26	

Manning Dr

Cars	Trucks	Buses	Totals
33	6	0	39

Peds Cross: ⧖
West Peds: 0
West Entering: 32
West Leg Total: 50

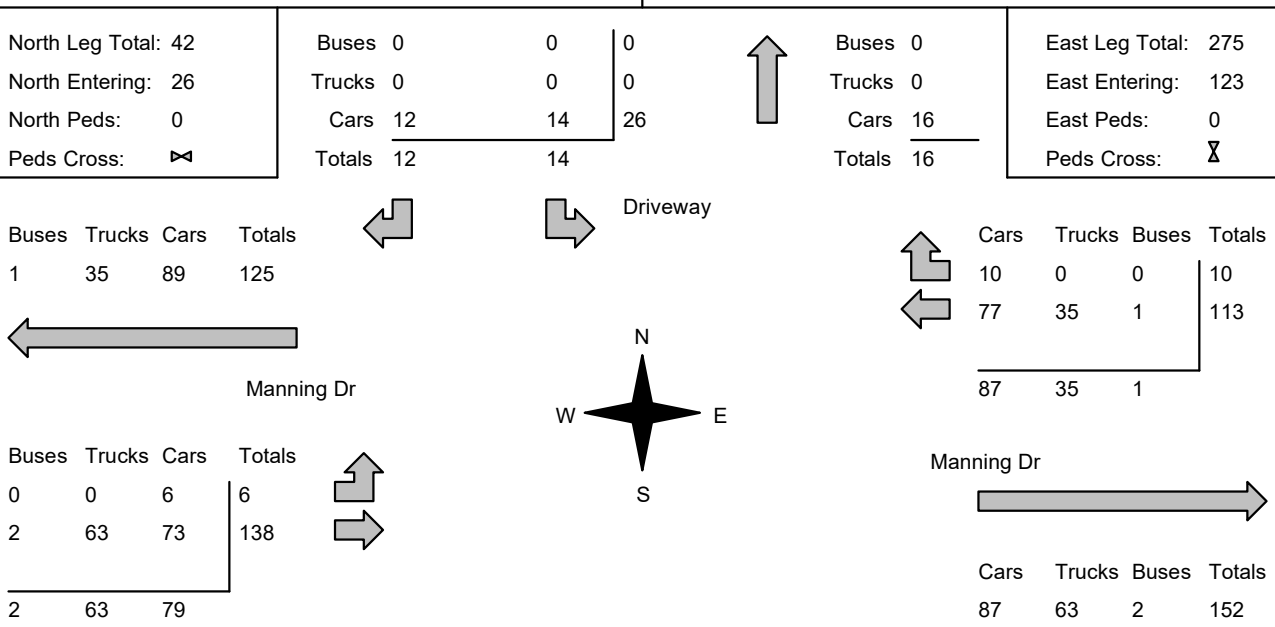
Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Total Count Diagram

Municipality: London Site #: 1919400003 Intersection: Manning Dr & Driveway TFR File #: 1 Count date: 5-Dec-19	Weather conditions: Person counted: Person prepared: Person checked:
** Non-Signalized Intersection **	Major Road: Manning Dr runs W/E



Peds Cross:
West Peds: 0
West Entering: 144
West Leg Total: 269

Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Traffic Count Summary

Intersection: Manning Dr & Driveway | Count Date: 5-Dec-19 | Municipality: London

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Buses				Total Peds	North/South Total Approaches
	Left	Thru	Right	Grand Total		
7:00:00	0	0	0	0	0	0
8:00:00	0	0	0	0	0	0
9:00:00	1	0	0	1	0	1
10:00:00	1	0	2	3	0	3
15:00:00	0	0	0	0	0	0
16:00:00	2	0	1	3	0	3
17:00:00	7	0	8	15	0	15
18:00:00	3	0	1	4	0	4
Totals:	14	0	12	26	0	26

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Buses				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0
8:00:00	0	0	0	0	0
9:00:00	0	0	0	0	0
10:00:00	0	0	0	0	0
15:00:00	0	0	0	0	0
16:00:00	0	0	0	0	0
17:00:00	0	0	0	0	0
18:00:00	0	0	0	0	0
S Totals:	0	0	0	0	0

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Buses				Total Peds	East/West Total Approaches
	Left	Thru	Right	Grand Total		
7:00:00	0	0	0	0	0	0
8:00:00	0	23	2	25	0	35
9:00:00	0	26	1	27	0	47
10:00:00	0	30	2	32	0	64
15:00:00	0	0	0	0	0	0
16:00:00	0	17	3	20	0	50
17:00:00	0	11	1	12	0	38
18:00:00	0	6	1	7	0	33
Totals:	0	113	10	123	0	267

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Buses				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0
8:00:00	1	9	0	10	0
9:00:00	0	20	0	20	0
10:00:00	4	28	0	32	0
15:00:00	0	0	0	0	0
16:00:00	0	30	0	30	0
17:00:00	0	26	0	26	0
18:00:00	1	25	0	26	0
W Totals:	6	138	0	144	0

Calculated Values for Traffic Crossing Major Street

Hours Ending:	7:00	8:00	9:00	10:00	15:00	16:00	17:00	18:00
Crossing Values:	0	0	1	1	0	2	7	3

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 5-Dec-19 Site #: 1919400003

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Buses - North Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15:00	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30:00	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45:00	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00:00	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15:00	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30:00	2	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45:00	2	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00:00	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15:00	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00:00	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15:00	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30:00	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45:00	4	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00:00	4	0	0	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15:00	4	0	0	0	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30:00	4	0	0	0	6	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45:00	10	6	0	0	9	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00:00	11	1	0	0	11	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15:00	11	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30:00	14	3	0	0	12	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45:00	14	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00:00	14	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:15:00	14	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:15:15	14	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 5-Dec-19 Site #: 1919400003

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Buses - East Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		East Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	0	0	4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45:00	0	0	9	5	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
8:00:00	0	0	19	10	2	2	0	0	4	3	0	0	0	0	0	0	0	0	0	0
8:15:00	0	0	22	3	2	0	0	0	7	3	0	0	0	0	0	0	0	0	0	0
8:30:00	0	0	23	1	2	0	0	0	8	1	0	0	0	0	0	0	0	0	0	0
8:45:00	0	0	29	6	2	0	0	0	10	2	0	0	0	0	1	1	0	0	0	0
9:00:00	0	0	34	5	3	1	0	0	14	4	0	0	0	0	1	0	0	0	0	0
9:15:00	0	0	35	1	3	0	0	0	19	5	0	0	0	0	1	0	0	0	0	0
9:30:00	0	0	38	3	4	1	0	0	24	5	0	0	0	0	1	0	0	0	0	0
9:45:00	0	0	42	4	4	0	0	0	27	3	0	0	0	0	1	0	0	0	0	0
10:00:00	0	0	46	4	5	1	0	0	32	5	0	0	0	0	1	0	0	0	0	0
10:15:00	0	0	46	0	5	0	0	0	32	0	0	0	0	0	1	0	0	0	0	0
15:00:00	0	0	46	0	5	0	0	0	32	0	0	0	0	0	1	0	0	0	0	0
15:15:00	0	0	53	7	5	0	0	0	33	1	0	0	0	0	1	0	0	0	0	0
15:30:00	0	0	57	4	7	2	0	0	34	1	0	0	0	0	1	0	0	0	0	0
15:45:00	0	0	59	2	8	1	0	0	34	0	0	0	0	0	1	0	0	0	0	0
16:00:00	0	0	60	1	8	0	0	0	35	1	0	0	0	0	1	0	0	0	0	0
16:15:00	0	0	61	1	8	0	0	0	35	0	0	0	0	0	1	0	0	0	0	0
16:30:00	0	0	65	4	8	0	0	0	35	0	0	0	0	0	1	0	0	0	0	0
16:45:00	0	0	68	3	9	1	0	0	35	0	0	0	0	0	1	0	0	0	0	0
17:00:00	0	0	71	3	9	0	0	0	35	0	0	0	0	0	1	0	0	0	0	0
17:15:00	0	0	72	1	10	1	0	0	35	0	0	0	0	0	1	0	0	0	0	0
17:30:00	0	0	74	2	10	0	0	0	35	0	0	0	0	0	1	0	0	0	0	0
17:45:00	0	0	76	2	10	0	0	0	35	0	0	0	0	0	1	0	0	0	0	0
18:00:00	0	0	77	1	10	0	0	0	35	0	0	0	0	0	1	0	0	0	0	0
18:15:00	0	0	77	0	10	0	0	0	35	0	0	0	0	0	1	0	0	0	0	0
18:15:15	0	0	77	0	10	0	0	0	35	0	0	0	0	0	1	0	0	0	0	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 5-Dec-19 Site #: 1919400003

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Buses - South Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		South Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 5-Dec-19 Site #: 1919400003

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Buses - West Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		West Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45:00	0	0	2	1	0	0	0	0	2	2	0	0	0	0	1	1	0	0	0	0
8:00:00	1	1	4	2	0	0	0	0	4	2	0	0	0	0	1	0	0	0	0	0
8:15:00	1	0	4	0	0	0	0	0	5	1	0	0	0	0	1	0	0	0	0	0
8:30:00	1	0	4	0	0	0	0	0	13	8	0	0	0	0	1	0	0	0	0	0
8:45:00	1	0	8	4	0	0	0	0	14	1	0	0	0	0	1	0	0	0	0	0
9:00:00	1	0	9	1	0	0	0	0	19	5	0	0	0	0	1	0	0	0	0	0
9:15:00	3	2	11	2	0	0	0	0	22	3	0	0	0	0	1	0	0	0	0	0
9:30:00	4	1	11	0	0	0	0	0	25	3	0	0	0	0	1	0	0	0	0	0
9:45:00	5	1	13	2	0	0	0	0	29	4	0	0	0	0	1	0	0	0	0	0
10:00:00	5	0	17	4	0	0	0	0	39	10	0	0	0	0	1	0	0	0	0	0
10:15:00	5	0	17	0	0	0	0	0	39	0	0	0	0	0	1	0	0	0	0	0
15:00:00	5	0	17	0	0	0	0	0	39	0	0	0	0	0	1	0	0	0	0	0
15:15:00	5	0	25	8	0	0	0	0	41	2	0	0	0	0	1	0	0	0	0	0
15:30:00	5	0	26	1	0	0	0	0	42	1	0	0	0	0	1	0	0	0	0	0
15:45:00	5	0	30	4	0	0	0	0	45	3	0	0	0	0	1	0	0	0	0	0
16:00:00	5	0	34	4	0	0	0	0	51	6	0	0	0	0	2	1	0	0	0	0
16:15:00	5	0	39	5	0	0	0	0	53	2	0	0	0	0	2	0	0	0	0	0
16:30:00	5	0	42	3	0	0	0	0	56	3	0	0	0	0	2	0	0	0	0	0
16:45:00	5	0	49	7	0	0	0	0	56	0	0	0	0	0	2	0	0	0	0	0
17:00:00	5	0	55	6	0	0	0	0	56	0	0	0	0	0	2	0	0	0	0	0
17:15:00	5	0	65	10	0	0	0	0	59	3	0	0	0	0	2	0	0	0	0	0
17:30:00	6	1	67	2	0	0	0	0	62	3	0	0	0	0	2	0	0	0	0	0
17:45:00	6	0	70	3	0	0	0	0	63	1	0	0	0	0	2	0	0	0	0	0
18:00:00	6	0	73	3	0	0	0	0	63	0	0	0	0	0	2	0	0	0	0	0
18:15:00	6	0	73	0	0	0	0	0	63	0	0	0	0	0	2	0	0	0	0	0
18:15:15	6	0	73	0	0	0	0	0	63	0	0	0	0	0	2	0	0	0	0	0

Horizon Data Services Ltd

318 Simonston Boulevard
Thornhill ON L3T 4T5
(416) 840-6619

"We do not estimate...we count"

File Name : Manning Dr at Primary Waste Recovery Access
Site Code : 00000000
Start Date : 10/31/2017
Page No : 1

Groups Printed- Cars - Trucks - Heavys - Cyclists

	Waste Recovery Access Southbound						Mannings Dr Westbound						Northbound						Mannings Dr Eastbound						
Start Time	Right	Thru	Left	Uturns	Peds	App. Total	Right	Thru	Left	Uturns	Peds	App. Total	Right	Thru	Left	Uturns	Peds	App. Total	Right	Thru	Left	Uturns	Peds	App. Total	Int. Total
07:00 AM	0	0	1	0	0	1	0	7	0	0	0	7	0	0	0	0	0	0	0	4	0	0	0	4	12
07:15 AM	0	0	1	0	0	1	0	7	0	0	0	7	0	0	0	0	0	0	0	4	0	0	0	4	12
07:30 AM	0	0	0	0	0	0	1	5	0	0	0	6	0	0	0	0	0	0	0	4	0	0	0	4	10
07:45 AM	0	0	1	0	0	1	0	8	0	0	0	8	0	0	0	0	0	0	0	3	0	0	0	3	12
Total	0	0	3	0	0	3	1	27	0	0	0	28	0	0	0	0	0	0	0	15	0	0	0	15	46
08:00 AM	0	0	0	0	0	0	1	4	0	1	0	6	0	0	0	0	0	0	0	1	0	0	0	1	7
08:15 AM	0	0	2	0	0	2	1	8	0	0	0	9	0	0	0	0	0	0	0	5	1	0	0	6	17
08:30 AM	0	0	1	0	0	1	0	9	0	0	0	9	0	0	0	0	0	0	0	4	0	0	0	4	14
08:45 AM	0	0	0	0	0	0	1	9	0	0	0	10	0	0	0	0	0	0	0	5	0	0	0	5	15
Total	0	0	3	0	0	3	3	30	0	1	0	34	0	0	0	0	0	0	0	15	1	0	0	16	53
11:00 AM	0	0	3	1	0	4	3	8	0	0	0	11	0	0	0	0	0	0	0	18	0	0	0	18	33
11:15 AM	0	0	6	0	0	6	4	14	0	0	0	18	0	0	0	0	0	0	0	11	0	0	0	11	35
11:30 AM	0	0	6	0	0	6	2	11	0	0	0	13	0	0	0	0	0	0	0	14	0	0	0	14	33
11:45 AM	0	0	3	0	0	3	3	9	0	0	0	12	0	0	0	0	0	0	0	9	0	0	0	9	24
Total	0	0	18	1	0	19	12	42	0	0	0	54	0	0	0	0	0	0	0	52	0	0	0	52	125
12:00 PM	0	0	2	0	0	2	2	6	0	0	0	8	0	0	0	0	0	0	0	7	0	0	0	7	17
12:15 PM	1	0	1	0	0	2	0	10	0	0	0	10	0	0	0	0	0	0	0	10	0	0	0	10	22
12:30 PM	2	0	0	0	0	2	2	6	0	0	0	8	0	0	0	0	0	0	0	7	0	0	0	7	17
12:45 PM	0	0	0	1	0	1	1	11	0	0	0	12	0	0	0	0	0	0	0	7	0	0	0	7	20
Total	3	0	3	1	0	7	5	33	0	0	0	38	0	0	0	0	0	0	0	31	0	0	0	31	76
01:00 PM	0	0	1	1	0	2	1	9	0	0	0	10	0	0	0	0	0	0	0	13	1	0	0	14	26
01:15 PM	3	0	3	0	0	6	3	8	0	0	0	11	0	0	0	0	0	0	0	6	0	0	0	6	23
01:30 PM	1	0	1	0	0	2	2	6	0	0	0	8	0	0	0	0	0	0	0	17	1	0	0	18	28
01:45 PM	0	0	1	0	0	1	5	7	0	0	0	12	0	0	0	0	0	0	0	7	1	0	0	8	21
Total	4	0	6	1	0	11	11	30	0	0	0	41	0	0	0	0	0	0	0	43	3	0	0	46	98
03:00 PM	0	0	1	0	0	1	1	6	0	0	0	7	0	0	0	0	0	0	0	12	0	0	0	12	20

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"We do not estimate...we count"

File Name : Manning Dr at Primary Waste Recovery Access
Site Code : 00000000
Start Date : 10/31/2017
Page No : 2

Groups Printed- Cars - Trucks - Heavys - Cyclists

	Waste Recovery Access Southbound						Mannings Dr Westbound						Northbound						Mannings Dr Eastbound						
Start Time	Right	Thru	Left	Uturns	Peds	App. Total	Right	Thru	Left	Uturns	Peds	App. Total	Right	Thru	Left	Uturns	Peds	App. Total	Right	Thru	Left	Uturns	Peds	App. Total	Int. Total
03:15 PM	0	0	2	0	0	2	0	6	0	0	0	6	0	0	0	0	0	0	0	9	1	0	0	10	18
03:30 PM	0	0	1	0	0	1	1	5	0	0	0	6	0	0	0	0	0	0	0	7	0	0	0	7	14
03:45 PM	0	0	1	0	0	1	2	3	0	0	0	5	0	0	0	0	0	0	0	7	1	0	0	8	14
Total	0	0	5	0	0	5	4	20	0	0	0	24	0	0	0	0	0	0	0	35	2	0	0	37	66
04:00 PM	0	0	1	0	0	1	0	6	0	0	0	6	0	0	0	0	0	0	0	16	0	0	0	16	23
04:15 PM	0	0	2	0	0	2	0	2	0	0	0	2	0	0	0	0	0	0	0	6	0	0	0	6	10
04:30 PM	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	6	0	0	0	6	8
04:45 PM	0	0	0	0	0	0	0	3	0	0	0	3	0	0	0	0	0	0	0	4	0	0	0	4	7
Total	0	0	3	0	0	3	0	13	0	0	0	13	0	0	0	0	0	0	0	32	0	0	0	32	48
05:00 PM	0	0	0	0	0	0	1	1	0	0	0	2	0	0	0	0	0	0	0	4	0	0	0	4	6
05:15 PM	0	0	1	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0	5	0	0	0	5	7
05:30 PM	0	0	0	0	0	0	0	4	0	0	0	4	0	0	0	0	0	0	0	4	0	0	0	4	8
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
Total	0	0	1	0	0	1	1	6	0	0	0	7	0	0	0	0	0	0	0	14	0	0	0	14	22
Grand Total	7	0	42	3	0	52	37	201	0	1	0	239	0	0	0	0	0	0	0	237	6	0	0	243	534
Apprch %	13.5	0	80.8	5.8	0		15.5	84.1	0	0.4	0		0	0	0	0	0		0	97.5	2.5	0	0		
Total %	1.3	0	7.9	0.6	0	9.7	6.9	37.6	0	0.2	0	44.8	0	0	0	0	0	0	0	44.4	1.1	0	0	45.5	
Cars	3	0	0	0	0	3	3	137	0	0	0	140	0	0	0	0	0	0	0	158	0	0	0	158	301
% Cars	42.9	0	0	0	0	5.8	8.1	68.2	0	0	0	58.6	0	0	0	0	0	0	0	66.7	0	0	0	65	56.4
Trucks	0	0	24	0	0	24	20	6	0	0	0	26	0	0	0	0	0	0	0	7	1	0	0	8	58
% Trucks	0	0	57.1	0	0	46.2	54.1	3	0	0	0	10.9	0	0	0	0	0	0	0	3	16.7	0	0	3.3	10.9
Heavys	4	0	18	3	0	25	14	58	0	1	0	73	0	0	0	0	0	0	0	72	5	0	0	77	175
% Heavys	57.1	0	42.9	100	0	48.1	37.8	28.9	0	100	0	30.5	0	0	0	0	0	0	0	30.4	83.3	0	0	31.7	32.8
Cyclists	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Cyclists	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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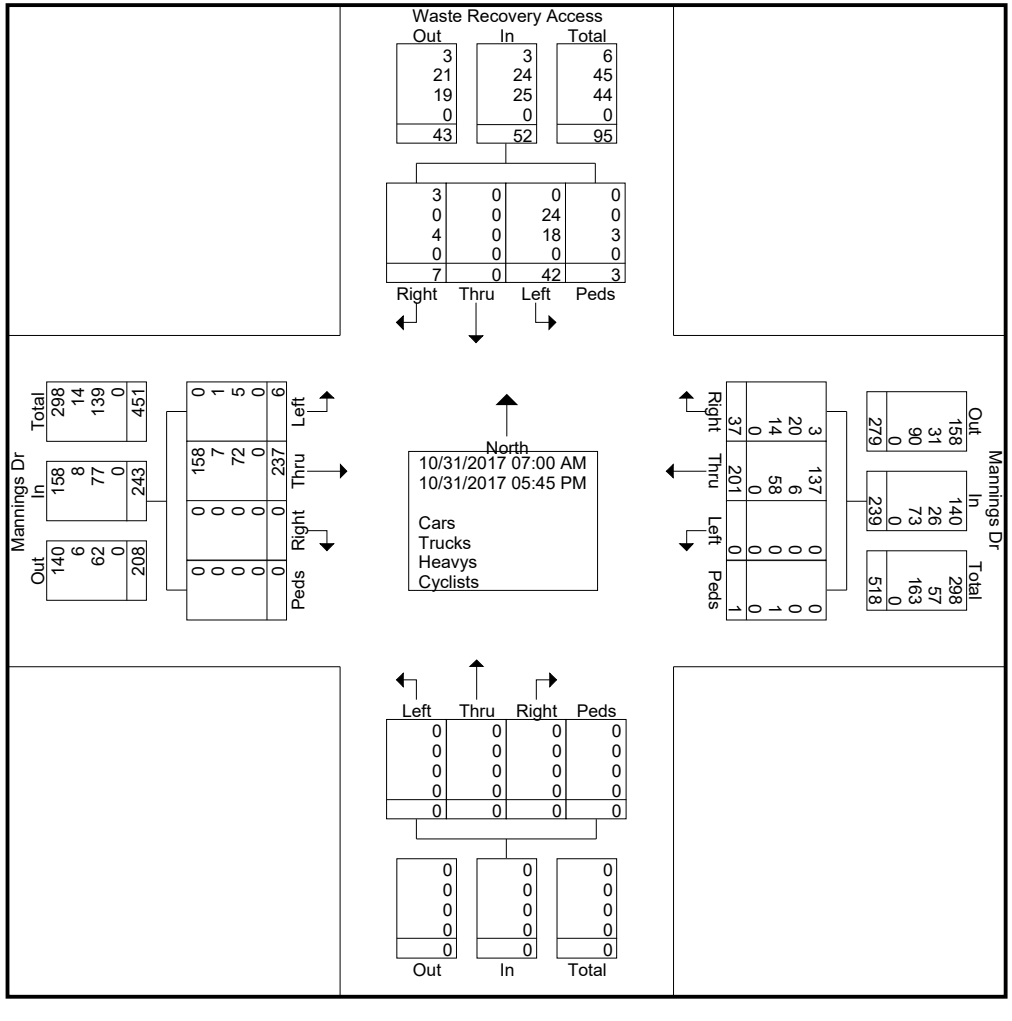
"We do not estimate...we count"

File Name : Manning Dr at Primary Waste Recovery Access
Site Code : 00000000
Start Date : 10/31/2017
Page No : 3



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"We do not estimate...we count"

File Name : Manning Dr at Primary Waste Recovery Access
Site Code : 00000000
Start Date : 10/31/2017
Page No : 4

	Waste Recovery Access Southbound						Mannings Dr Westbound						Northbound						Mannings Dr Eastbound						
Start Time	Right	Thru	Left	Uturns	Peds	App. Total	Right	Thru	Left	Uturns	Peds	App. Total	Right	Thru	Left	Uturns	Peds	App. Total	Right	Thru	Left	Uturns	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 08:00 AM																									
08:00 AM	0	0	0	0	0	0	**1**	4	0	**1**	0	6	0	0	0	0	0	0	0	1	0	0	0	1	7
08:15 AM	0	0	**2**	0	0	**2**	1	8	0	0	0	9	0	0	0	0	0	0	0	**5**	**1**	0	0	**6**	**17**
08:30 AM	0	0	1	0	0	1	0	**9**	0	0	0	9	0	0	0	0	0	0	0	4	0	0	0	4	14
08:45 AM	0	0	0	0	0	0	1	9	0	0	0	**10**	0	0	0	0	0	0	0	5	0	0	0	5	15
Total Volume	0	0	3	0	0	3	3	30	0	1	0	34	0	0	0	0	0	0	0	15	1	0	0	16	53
% App. Total	0	0	100	0	0		8.8	88.2	0	2.9	0		0	0	0	0	0		0	93.8	6.2	0	0		
PHF	.000	.000	.375	.000	.000	.375	.750	.833	.000	.250	.000	.850	.000	.000	.000	.000	.000	.000	.000	.750	.250	.000	.000	.667	.779
Cars	0	0	0	0	0	0	0	18	0	0	0	18	0	0	0	0	0	0	0	7	0	0	0	7	25
% Cars	0	0	0	0	0	0	0	60.0	0	0	0	52.9	0	0	0	0	0	0	0	46.7	0	0	0	43.8	47.2
Trucks	0	0	0	0	0	0	2	1	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
% Trucks	0	0	0	0	0	0	66.7	3.3	0	0	0	8.8	0	0	0	0	0	0	0	0	0	0	0	0	5.7
Heavys	0	0	3	0	0	3	1	11	0	1	0	13	0	0	0	0	0	0	0	8	1	0	0	9	25
% Heavys	0	0	100	0	0	100	33.3	36.7	0	100	0	38.2	0	0	0	0	0	0	0	53.3	100	0	0	56.3	47.2
Cyclists	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Cyclists	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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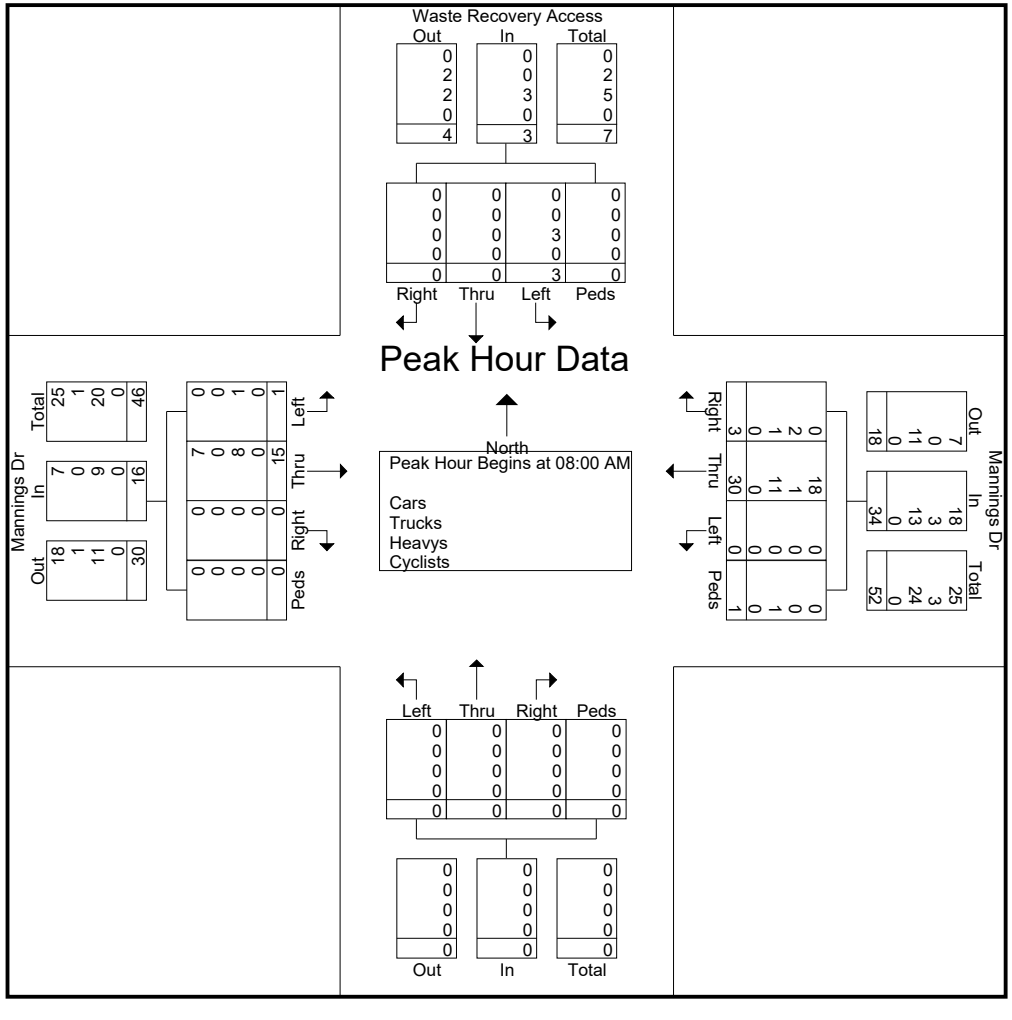
"We do not estimate...we count"

File Name : Manning Dr at Primary Waste Recovery Access
Site Code : 00000000
Start Date : 10/31/2017
Page No : 5



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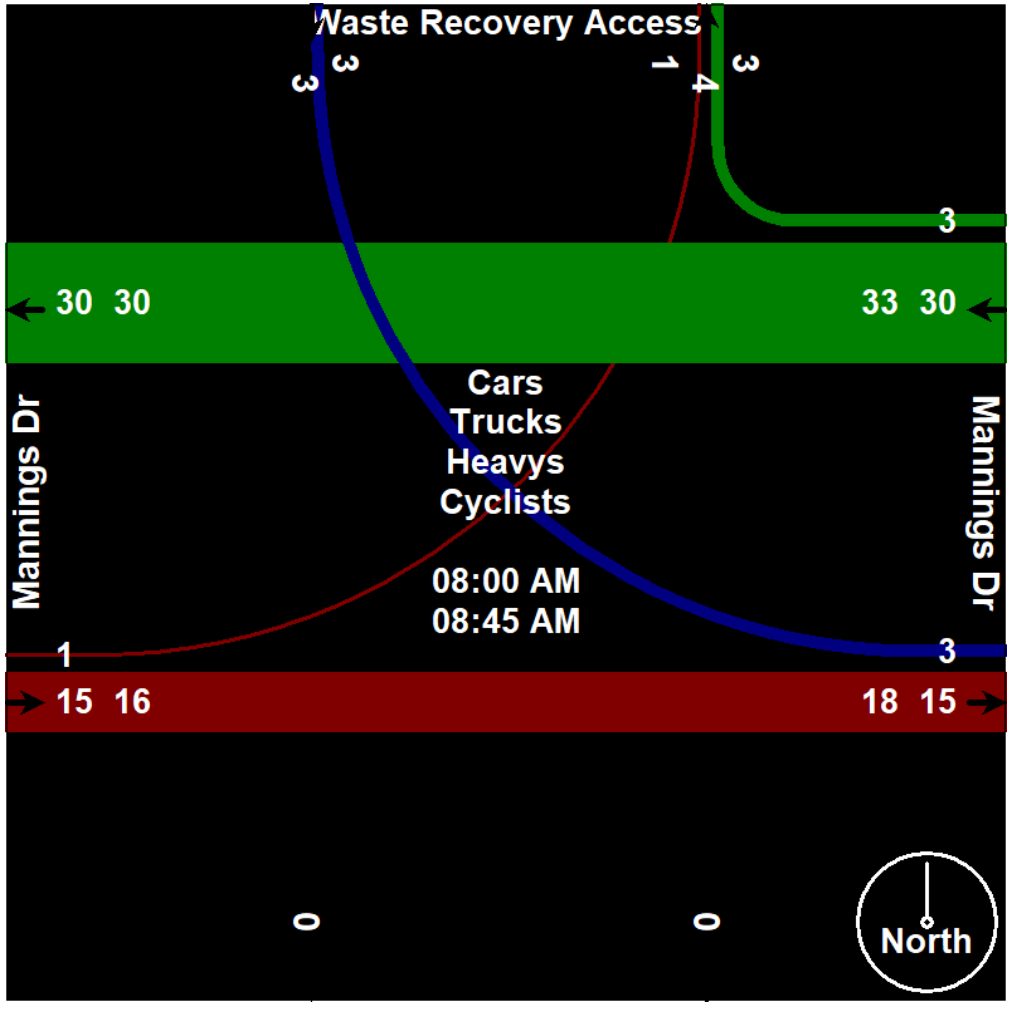
"We do not estimate...we count"

File Name : Manning Dr at Primary Waste Recovery Access
Site Code : 00000000
Start Date : 10/31/2017
Page No : 6



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"We do not estimate...we count"

File Name : Manning Dr at Primary Waste Recovery Access
Site Code : 00000000
Start Date : 10/31/2017
Page No : 7

	Waste Recovery Access Southbound						Mannings Dr Westbound						Northbound						Mannings Dr Eastbound						
Start Time	Right	Thru	Left	Uturns	Peds	App. Total	Right	Thru	Left	Uturns	Peds	App. Total	Right	Thru	Left	Uturns	Peds	App. Total	Right	Thru	Left	Uturns	Peds	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 11:00 AM																									
11:00 AM	0	0	3	**1**	0	4	3	8	0	0	0	11	0	0	0	0	0	0	0	**18**	0	0	0	**18**	33
11:15 AM	0	0	**6**	0	0	**6**	**4**	**14**	0	0	0	**18**	0	0	0	0	0	0	0	11	0	0	0	11	**35**
11:30 AM	0	0	6	0	0	6	2	11	0	0	0	13	0	0	0	0	0	0	0	14	0	0	0	14	33
11:45 AM	0	0	3	0	0	3	3	9	0	0	0	12	0	0	0	0	0	0	0	9	0	0	0	9	24
Total Volume	0	0	18	1	0	19	12	42	0	0	0	54	0	0	0	0	0	0	0	52	0	0	0	52	125
% App. Total	0	0	94.7	5.3	0		22.2	77.8	0	0	0		0	0	0	0	0		0	100	0	0	0		
PHF	.000	.000	.750	.250	.000	.792	.750	.750	.000	.000	.000	.750	.000	.000	.000	.000	.000	.000	.000	.722	.000	.000	.000	.722	.893
Cars	0	0	0	0	0	0	0	24	0	0	0	24	0	0	0	0	0	0	0	26	0	0	0	26	50
% Cars	0	0	0	0	0	0	0	57.1	0	0	0	44.4	0	0	0	0	0	0	0	50.0	0	0	0	50.0	40.0
Trucks	0	0	16	0	0	16	11	1	0	0	0	12	0	0	0	0	0	0	0	3	0	0	0	3	31
% Trucks	0	0	88.9	0	0	84.2	91.7	2.4	0	0	0	22.2	0	0	0	0	0	0	0	5.8	0	0	0	5.8	24.8
Heavys	0	0	2	1	0	3	1	17	0	0	0	18	0	0	0	0	0	0	0	23	0	0	0	23	44
% Heavys	0	0	11.1	100	0	15.8	8.3	40.5	0	0	0	33.3	0	0	0	0	0	0	0	44.2	0	0	0	44.2	35.2
Cyclists	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Cyclists	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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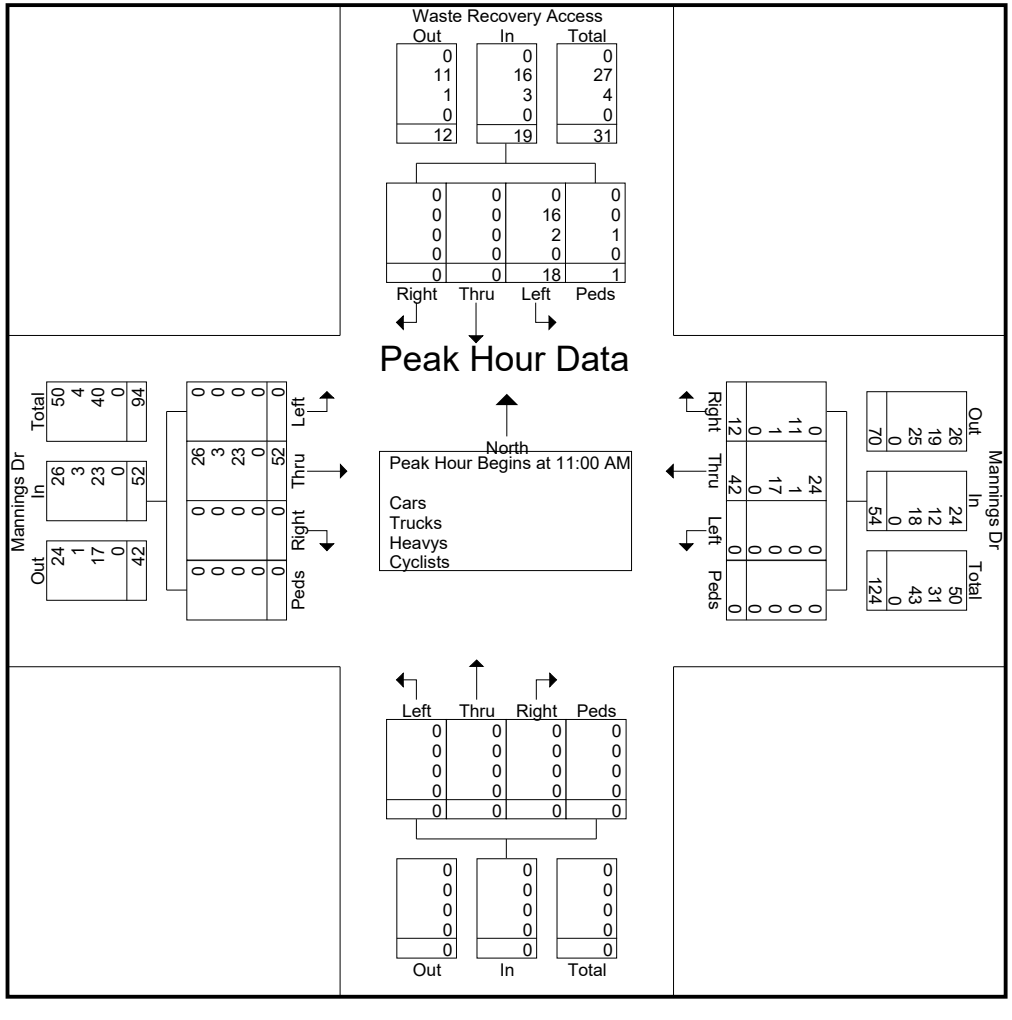
"We do not estimate...we count"

File Name : Manning Dr at Primary Waste Recovery Access
Site Code : 00000000
Start Date : 10/31/2017
Page No : 8



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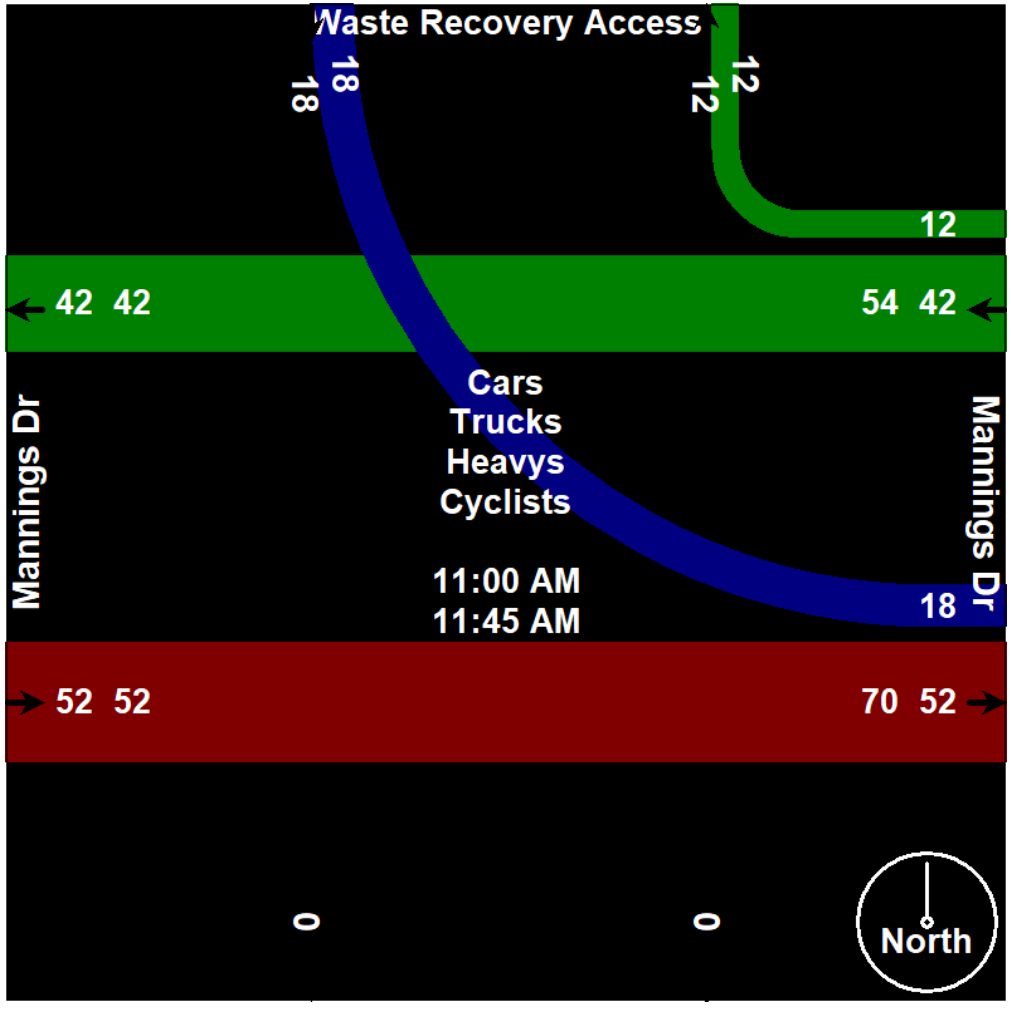
"We do not estimate...we count"

File Name : Manning Dr at Primary Waste Recovery Access
Site Code : 00000000
Start Date : 10/31/2017
Page No : 9



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"We do not estimate...we count"

File Name : Manning Dr at Primary Waste Recovery Access
Site Code : 00000000
Start Date : 10/31/2017

	Waste Recovery Access Southbound						Mannings Dr Westbound						Northbound						Mannings Dr Eastbound						
Start Time	Right	Thru	Left	Uturns	Peds	App. Total	Right	Thru	Left	Uturns	Peds	App. Total	Right	Thru	Left	Uturns	Peds	App. Total	Right	Thru	Left	Uturns	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 03:15 PM																									
03:15 PM	0	0	**2**	0	0	**2**	0	**6**	0	0	0	**6**	0	0	0	0	0	0	0	9	**1**	0	0	10	18
03:30 PM	0	0	1	0	0	1	1	5	0	0	0	6	0	0	0	0	0	0	0	7	0	0	0	7	14
03:45 PM	0	0	1	0	0	1	**2**	3	0	0	0	5	0	0	0	0	0	0	0	7	1	0	0	8	14
04:00 PM	0	0	1	0	0	1	0	6	0	0	0	6	0	0	0	0	0	0	0	**16**	0	0	0	**16**	**23**
Total Volume	0	0	5	0	0	5	3	20	0	0	0	23	0	0	0	0	0	0	0	39	2	0	0	41	69
% App. Total	0	0	100	0	0		13	87	0	0	0		0	0	0	0	0		0	95.1	4.9	0	0		
PHF	.000	.000	.625	.000	.000	.625	.375	.833	.000	.000	.000	.958	.000	.000	.000	.000	.000	.000	.000	.609	.500	.000	.000	.641	.750
Cars	0	0	0	0	0	0	0	20	0	0	0	20	0	0	0	0	0	0	0	36	0	0	0	36	56
% Cars	0	0	0	0	0	0	0	100	0	0	0	87.0	0	0	0	0	0	0	0	92.3	0	0	0	87.8	81.2
Trucks	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
% Trucks	0	0	20.0	0	0	20.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50.0	0	0	2.4	2.9
Heavys	0	0	4	0	0	4	3	0	0	0	0	3	0	0	0	0	0	0	0	3	1	0	0	4	11
% Heavys	0	0	80.0	0	0	80.0	100	0	0	0	0	13.0	0	0	0	0	0	0	0	7.7	50.0	0	0	9.8	15.9
Cyclists	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Cyclists	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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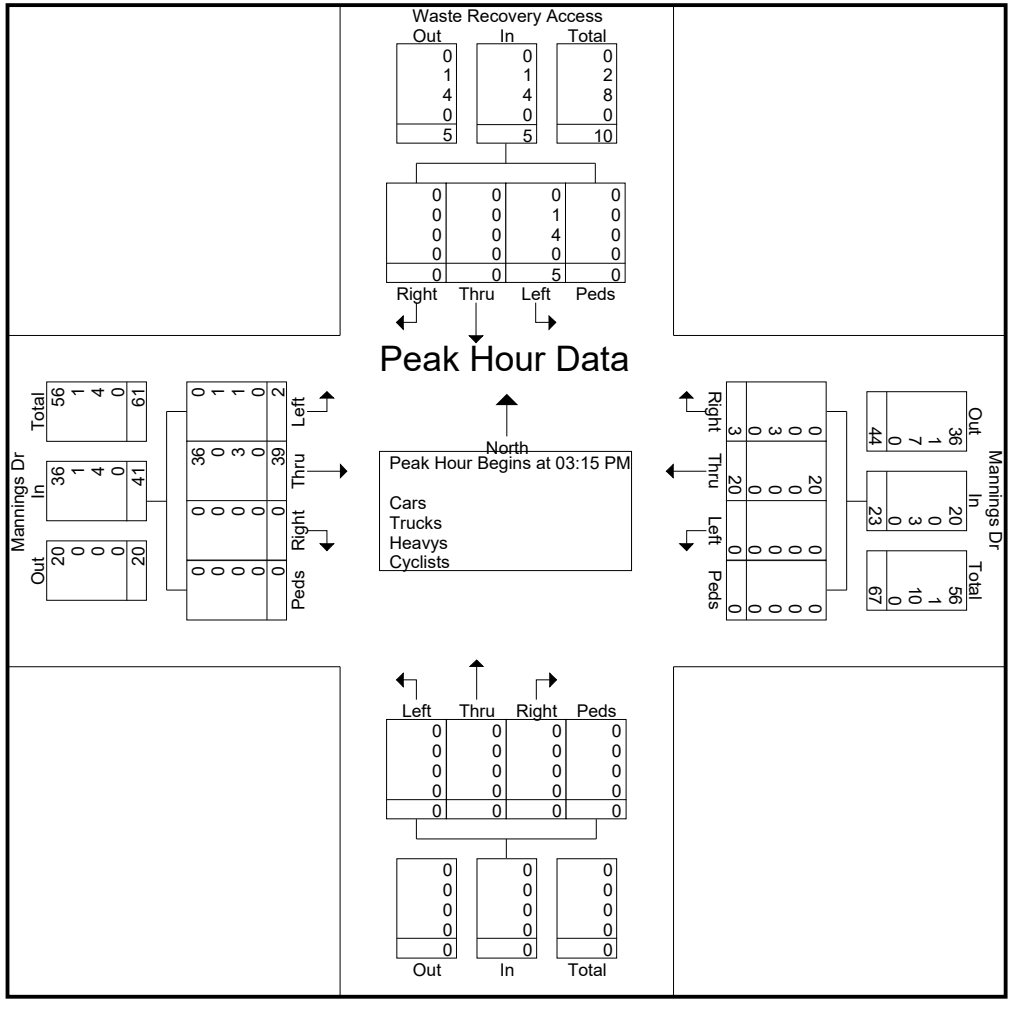
"We do not estimate...we count"

File Name : Manning Dr at Primary Waste Recovery Access
Site Code : 00000000
Start Date : 10/31/2017
Page No : 11



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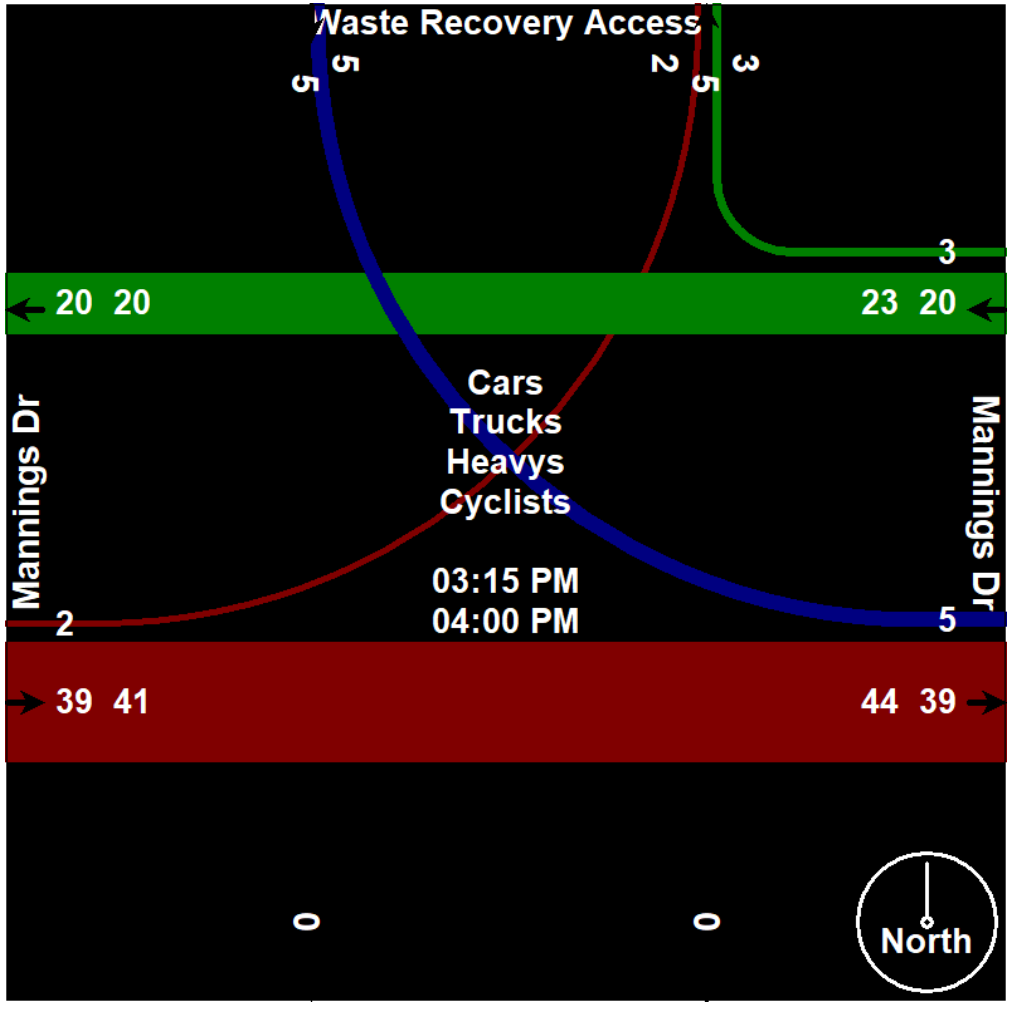
"We do not estimate...we count"

File Name : Manning Dr at Primary Waste Recovery Access
Site Code : 00000000
Start Date : 10/31/2017
Page No : 12



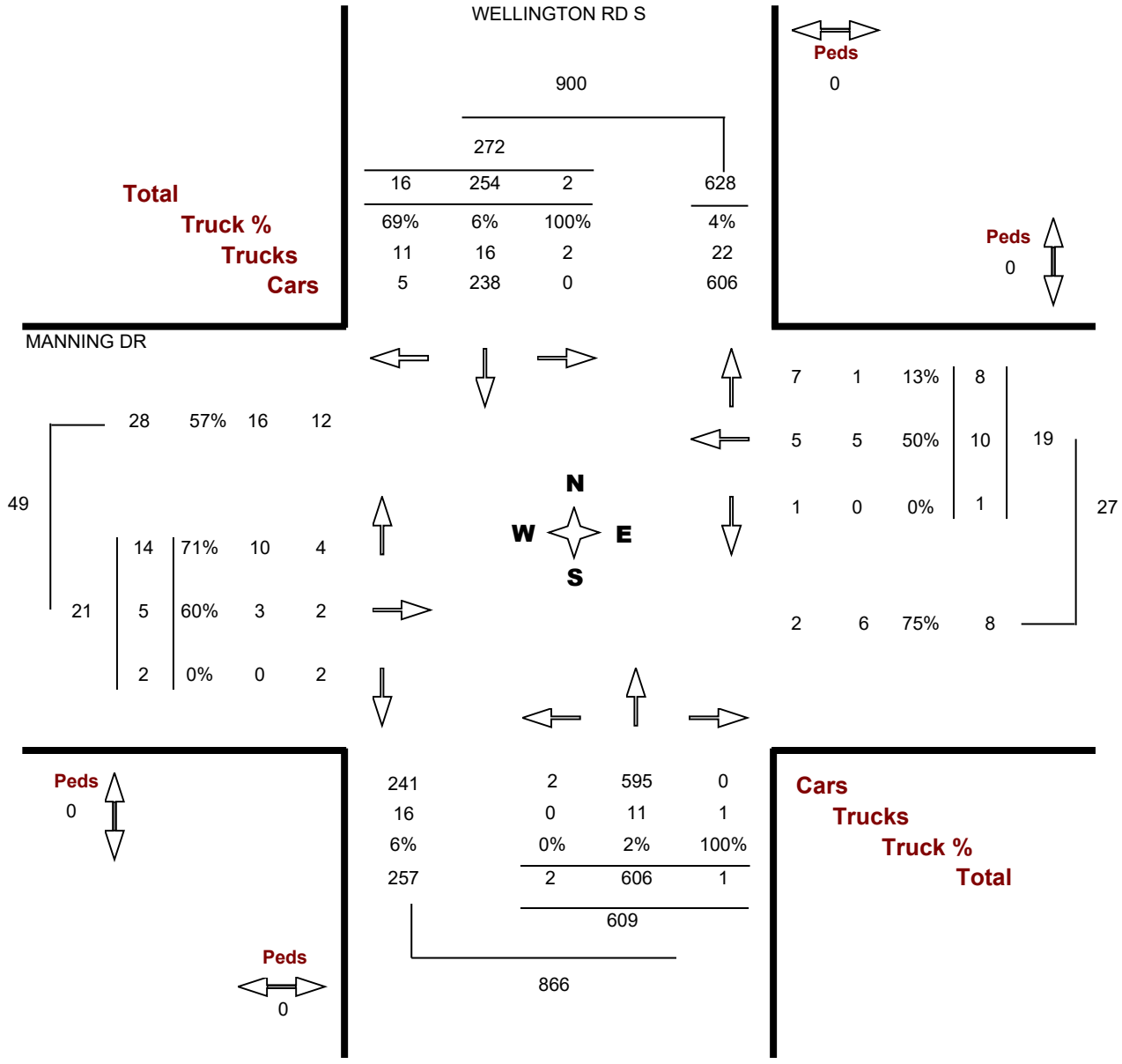
Turning Movements Report - AM Period

Location..... MANNING DR @ WELLINGTON RD S

Municipality..... LONDON

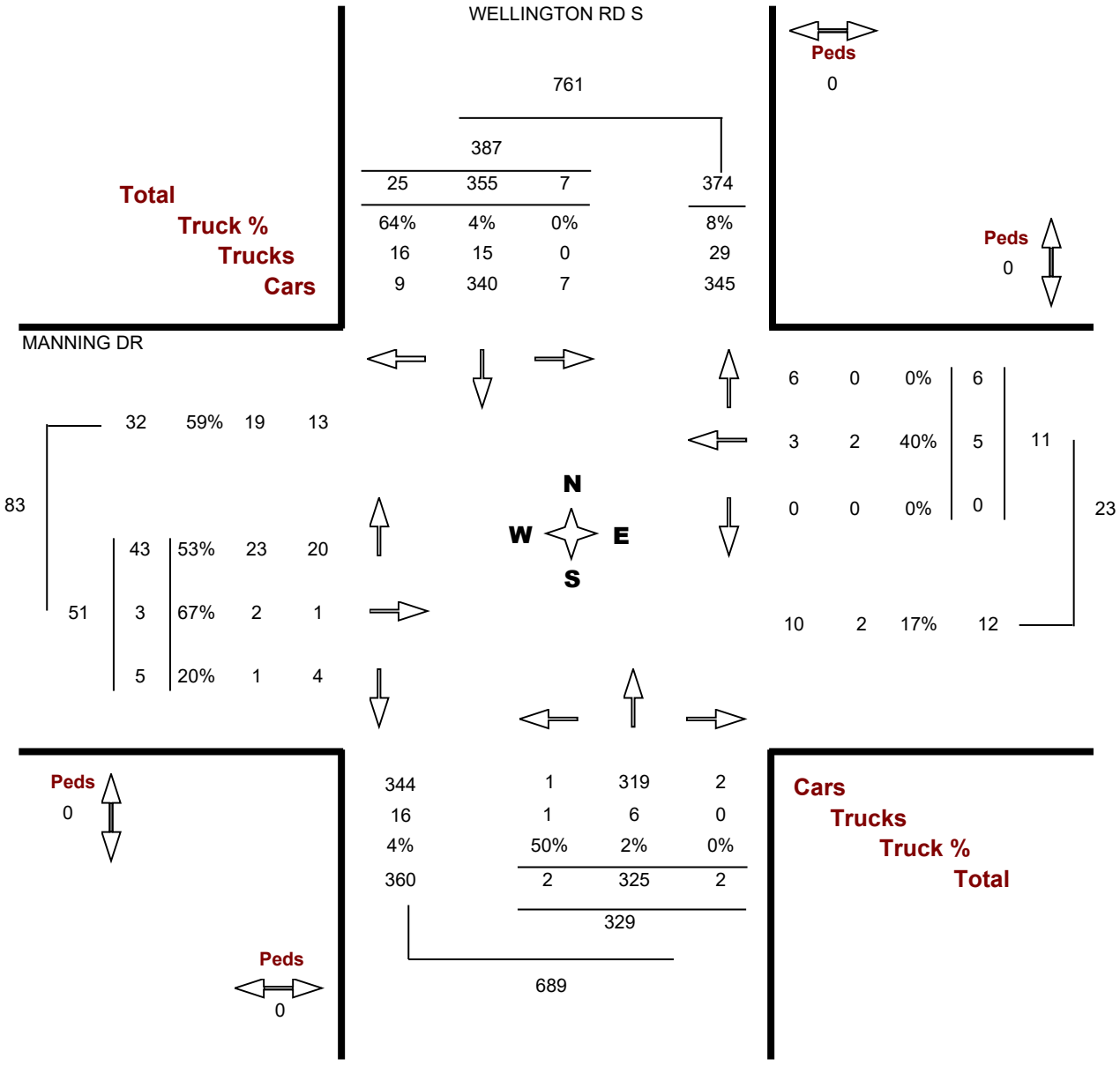
GeoID..... INT6346

Count Date..... Wednesday, 10 May, 2017 **Peak Hour.....** 07:15 AM — 08:15 AM



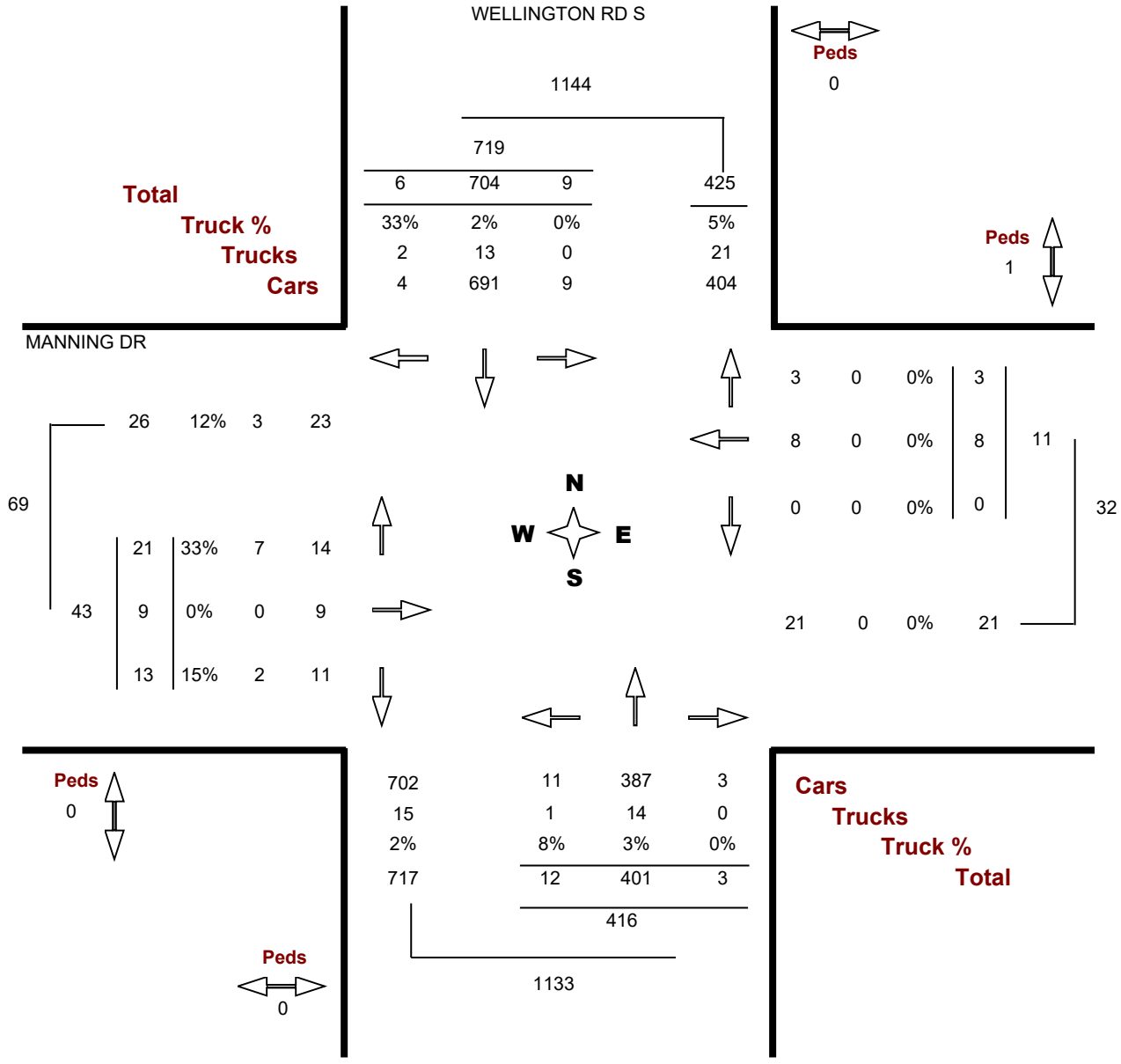
Turning Movements Report - MD Period

Location..... MANNING DR @ WELLINGTON RD S
Municipality..... LONDON
GeoID..... INT6346
Count Date..... Wednesday, 10 May, 2017 **Peak Hour.....** 11:30 AM — 12:30 PM



Turning Movements Report - PM Period

Location..... MANNING DR @ WELLINGTON RD S
Municipality..... LONDON
GeoID..... INT6346
Count Date..... Wednesday, 10 May, 2017 **Peak Hour.....** 04:30 PM — 05:30 PM



Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 10:00:00

One Hour Peak
From: 7:15:00
To: 8:15:00

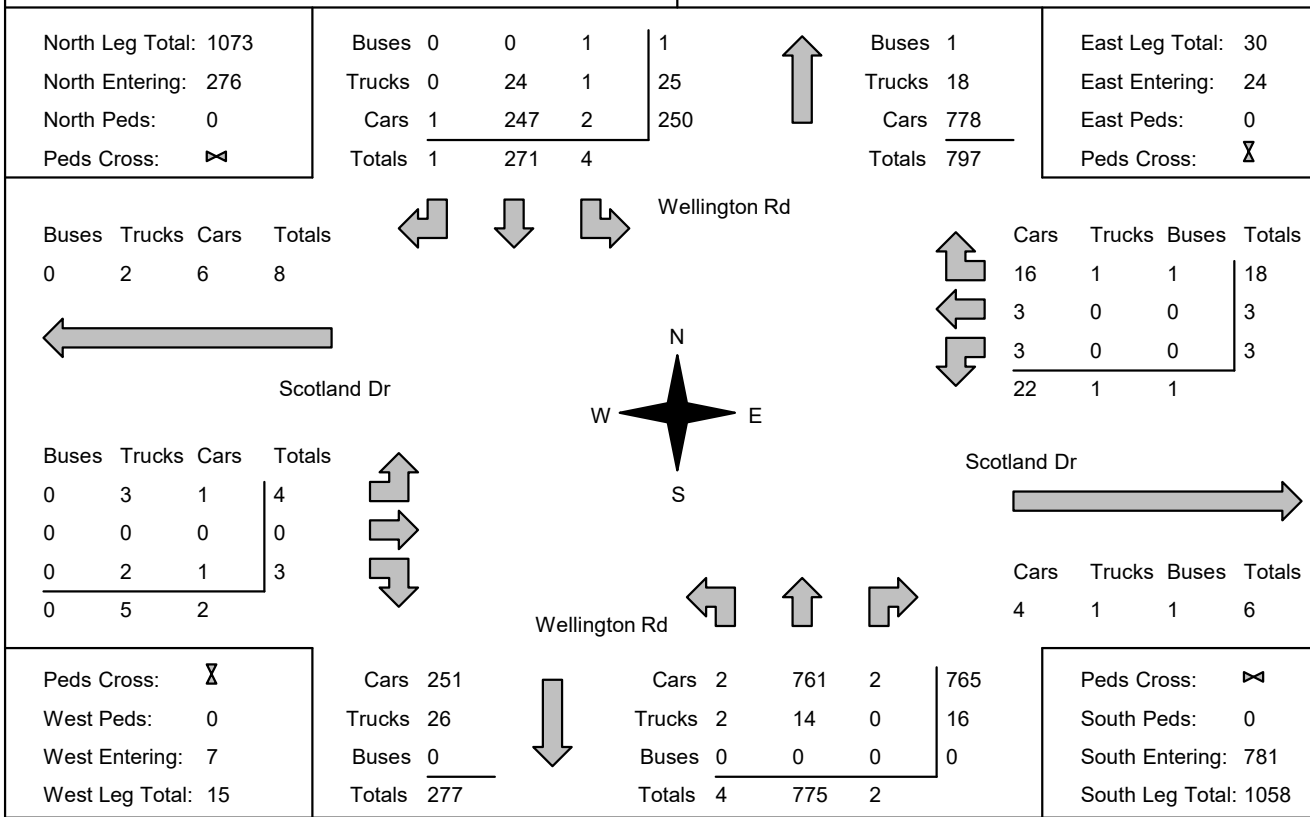
Municipality: London
Site #: 1919400001
Intersection: Wellington Rd & Scotland Dr
TFR File #: 1
Count date: 5-Dec-19

Weather conditions:

Person counted:
Person prepared:
Person checked:

** Non-Signalized Intersection **

Major Road: Wellington Rd runs N/S



Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 16:15:00
To: 17:15:00

Municipality: London
Site #: 1919400001
Intersection: Wellington Rd & Scotland Dr
TFR File #: 1
Count date: 5-Dec-19

Weather conditions:

Person counted:
Person prepared:
Person checked:

** Non-Signalized Intersection **

Major Road: Wellington Rd runs N/S

North Leg Total: 1330
North Entering: 830
North Peds: 0
Peds Cross: ⋈

Buses	0	0	0	0
Trucks	4	6	0	10
Cars	5	802	13	820
Totals	9	808	13	

Buses	1
Trucks	24
Cars	475
Totals	500

East Leg Total: 27
East Entering: 10
East Peds: 0
Peds Cross: ⧖

Wellington Rd

Buses	Trucks	Cars	Totals
0	4	7	11

Scotland Dr

Cars	Trucks	Buses	Totals
5	0	0	5
1	0	0	1
4	0	0	4
10	0	0	

N
W E
S

Buses	Trucks	Cars	Totals
0	2	9	11
0	0	4	4
0	1	2	3
0	3	15	

Scotland Dr

Cars	Trucks	Buses	Totals
17	0	0	17

Wellington Rd

Peds Cross: ⧖
West Peds: 0
West Entering: 18
West Leg Total: 29

Cars	808
Trucks	7
Buses	0
Totals	815

Cars	1	461	0	462
Trucks	0	22	0	22
Buses	0	1	0	1
Totals	1	484	0	

Peds Cross: ⋈
South Peds: 0
South Entering: 485
South Leg Total: 1300

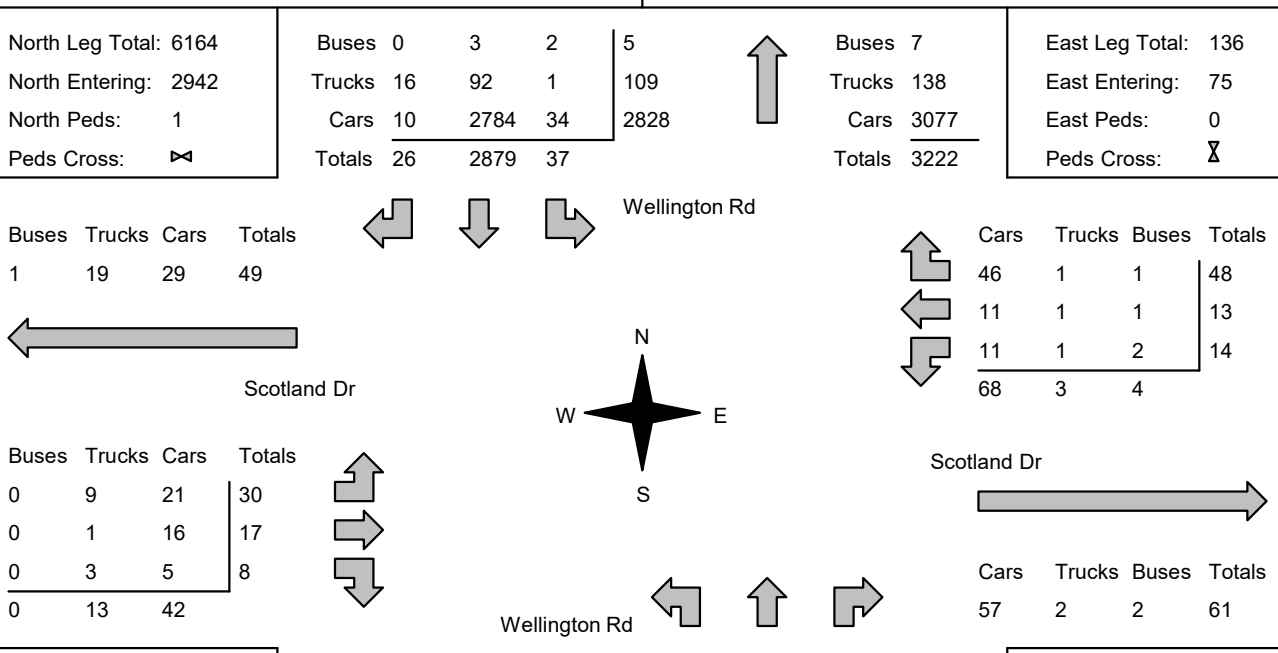
Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Total Count Diagram

Municipality: London Site #: 1919400001 Intersection: Wellington Rd & Scotland Dr TFR File #: 1 Count date: 5-Dec-19	Weather conditions: Person counted: Person prepared: Person checked:
** Non-Signalized Intersection **	Major Road: Wellington Rd runs N/S



Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Traffic Count Summary

Intersection: Wellington Rd & Scotland Dr | Count Date: 5-Dec-19 | Municipality: London

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Buses				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0
8:00:00	2	244	2	248	0
9:00:00	4	284	4	292	0
10:00:00	3	213	2	218	0
15:00:00	0	0	0	0	0
16:00:00	12	661	6	679	1
17:00:00	12	786	11	809	0
18:00:00	4	691	1	696	0
Totals:	37	2879	26	2942	1

North/South Total Approaches: 6103

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Buses				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0
8:00:00	4	750	2	756	0
9:00:00	2	607	0	609	0
10:00:00	1	474	0	475	0
15:00:00	0	0	0	0	0
16:00:00	2	395	4	401	0
17:00:00	1	476	0	477	0
18:00:00	0	442	1	443	0
S Totals:	10	3144	7	3161	0

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Buses				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0
8:00:00	1	4	16	21	0
9:00:00	4	2	7	13	0
10:00:00	2	2	8	12	0
15:00:00	0	0	0	0	0
16:00:00	2	2	6	10	0
17:00:00	4	0	3	7	0
18:00:00	1	3	8	12	0
Totals:	14	13	48	75	0

East/West Total Approaches: 130

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Buses				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0
8:00:00	4	0	1	5	0
9:00:00	4	2	4	10	0
10:00:00	1	2	0	3	0
15:00:00	0	0	0	0	0
16:00:00	5	2	0	7	0
17:00:00	8	3	3	14	0
18:00:00	8	8	0	16	0
W Totals:	30	17	8	55	0

Calculated Values for Traffic Crossing Major Street

Hours Ending:	7:00	8:00	9:00	10:00	15:00	16:00	17:00	18:00
Crossing Values:	0	9	10	5	0	10	15	17

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 5-Dec-19 Site #: 1919400001

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Buses - North Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	43	43	0	0	0	0	3	3	1	1	0	0	0	0	0	0	0	0
7:30:00	0	0	98	55	1	1	0	0	7	4	1	0	0	0	0	0	0	0	0	0
7:45:00	1	1	160	62	1	0	0	0	15	8	1	0	0	0	0	0	0	0	0	0
8:00:00	2	1	222	62	1	0	0	0	22	7	1	0	0	0	0	0	0	0	0	0
8:15:00	2	0	290	68	1	0	1	1	27	5	1	0	1	1	0	0	0	0	0	0
8:30:00	2	0	352	62	2	1	1	0	33	6	3	2	1	0	3	3	0	0	0	0
8:45:00	3	1	418	66	2	0	1	0	41	8	3	0	1	0	3	0	0	0	0	0
9:00:00	4	1	477	59	2	0	1	0	48	7	4	1	1	0	3	0	0	0	0	0
9:15:00	4	0	535	58	2	0	1	0	55	7	5	1	1	0	3	0	0	0	0	0
9:30:00	5	1	571	36	2	0	1	0	62	7	5	0	1	0	3	0	0	0	0	0
9:45:00	5	0	620	49	2	0	1	0	70	8	5	0	1	0	3	0	0	0	0	0
10:00:00	7	2	663	43	2	0	1	0	75	5	6	1	1	0	3	0	0	0	0	0
10:15:00	7	0	663	0	2	0	1	0	75	0	6	0	1	0	3	0	0	0	0	0
15:00:00	7	0	663	0	2	0	1	0	75	0	6	0	1	0	3	0	0	0	0	0
15:15:00	10	3	813	150	3	1	1	0	76	1	7	1	1	0	3	0	0	0	0	0
15:30:00	13	3	973	160	4	1	1	0	77	1	8	1	1	0	3	0	0	0	0	0
15:45:00	14	1	1147	174	5	1	1	0	78	1	8	0	1	0	3	0	0	0	0	0
16:00:00	18	4	1318	171	5	0	1	0	81	3	9	1	2	1	3	0	0	0	1	1
16:15:00	18	0	1506	188	5	0	1	0	84	3	11	2	2	0	3	0	0	0	1	0
16:30:00	27	9	1700	194	8	3	1	0	85	1	13	2	2	0	3	0	0	0	1	0
16:45:00	28	1	1903	203	9	1	1	0	85	0	14	1	2	0	3	0	0	0	1	0
17:00:00	30	2	2096	193	10	1	1	0	89	4	15	1	2	0	3	0	0	0	1	0
17:15:00	31	1	2308	212	10	0	1	0	90	1	15	0	2	0	3	0	0	0	1	0
17:30:00	31	0	2481	173	10	0	1	0	92	2	16	1	2	0	3	0	0	0	1	0
17:45:00	33	2	2637	156	10	0	1	0	92	0	16	0	2	0	3	0	0	0	1	0
18:00:00	34	1	2784	147	10	0	1	0	92	0	16	0	2	0	3	0	0	0	1	0
18:15:00	34	0	2784	0	10	0	1	0	92	0	16	0	2	0	3	0	0	0	1	0
18:15:15	34	0	2784	0	10	0	1	0	92	0	16	0	2	0	3	0	0	0	1	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 5-Dec-19 Site #: 1919400001

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Buses - East Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		East Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0
7:30:00	0	0	1	1	3	3	0	0	0	0	0	0	0	0	1	0	0	0	0	0
7:45:00	1	1	2	1	10	7	0	0	0	0	0	0	0	0	1	0	0	0	0	0
8:00:00	1	0	3	1	15	5	0	0	0	0	0	0	0	0	1	0	1	1	0	0
8:15:00	3	2	3	0	16	1	0	0	0	0	1	1	0	0	1	0	1	0	0	0
8:30:00	3	0	3	0	19	3	0	0	1	1	1	0	1	1	1	0	1	0	0	0
8:45:00	3	0	3	0	20	1	0	0	1	0	1	0	1	0	1	0	1	0	0	0
9:00:00	3	0	4	1	21	1	1	1	1	0	1	0	1	0	1	0	1	0	0	0
9:15:00	3	0	5	1	22	1	1	0	1	0	1	0	1	0	1	0	1	0	0	0
9:30:00	4	1	5	0	24	2	1	0	1	0	1	0	1	0	1	0	1	0	0	0
9:45:00	5	1	5	0	28	4	1	0	1	0	1	0	1	0	1	0	1	0	0	0
10:00:00	5	0	6	1	29	1	1	0	1	0	1	0	1	0	1	0	1	0	0	0
10:15:00	5	0	6	0	29	0	1	0	1	0	1	0	1	0	1	0	1	0	0	0
15:00:00	5	0	6	0	29	0	1	0	1	0	1	0	1	0	1	0	1	0	0	0
15:15:00	5	0	6	0	30	1	1	0	1	0	1	0	1	0	1	0	1	0	0	0
15:30:00	5	0	7	1	30	0	1	0	1	0	1	0	1	0	1	0	1	0	0	0
15:45:00	6	1	7	0	33	3	1	0	1	0	1	0	1	0	1	0	1	0	0	0
16:00:00	6	0	8	1	35	2	1	0	1	0	1	0	2	1	1	0	1	0	0	0
16:15:00	6	0	8	0	36	1	1	0	1	0	1	0	2	0	1	0	1	0	0	0
16:30:00	7	1	8	0	36	0	1	0	1	0	1	0	2	0	1	0	1	0	0	0
16:45:00	10	3	8	0	37	1	1	0	1	0	1	0	2	0	1	0	1	0	0	0
17:00:00	10	0	8	0	38	1	1	0	1	0	1	0	2	0	1	0	1	0	0	0
17:15:00	10	0	9	1	41	3	1	0	1	0	1	0	2	0	1	0	1	0	0	0
17:30:00	11	1	11	2	41	0	1	0	1	0	1	0	2	0	1	0	1	0	0	0
17:45:00	11	0	11	0	44	3	1	0	1	0	1	0	2	0	1	0	1	0	0	0
18:00:00	11	0	11	0	46	2	1	0	1	0	1	0	2	0	1	0	1	0	0	0
18:15:00	11	0	11	0	46	0	1	0	1	0	1	0	2	0	1	0	1	0	0	0
18:15:15	11	0	11	0	46	0	1	0	1	0	1	0	2	0	1	0	1	0	0	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 5-Dec-19 Site #: 1919400001

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Buses - South Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		South Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	137	137	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
7:30:00	2	2	348	211	0	0	1	1	5	4	0	0	0	0	0	0	0	0	0	0
7:45:00	2	0	558	210	1	1	2	1	8	3	0	0	0	0	0	0	0	0	0	0
8:00:00	2	0	739	181	2	1	2	0	11	3	0	0	0	0	0	0	0	0	0	0
8:15:00	2	0	898	159	2	0	2	0	15	4	0	0	0	0	0	0	0	0	0	0
8:30:00	2	0	1051	153	2	0	2	0	26	11	0	0	0	0	1	1	0	0	0	0
8:45:00	3	1	1185	134	2	0	2	0	29	3	0	0	0	0	1	0	0	0	0	0
9:00:00	4	1	1322	137	2	0	2	0	33	4	0	0	0	0	2	1	0	0	0	0
9:15:00	5	1	1431	109	2	0	2	0	40	7	0	0	0	0	3	1	0	0	0	0
9:30:00	5	0	1549	118	2	0	2	0	45	5	0	0	0	0	3	0	0	0	0	0
9:45:00	5	0	1669	120	2	0	2	0	51	6	0	0	0	0	3	0	0	0	0	0
10:00:00	5	0	1769	100	2	0	2	0	59	8	0	0	0	0	3	0	0	0	0	0
10:15:00	5	0	1769	0	2	0	2	0	59	0	0	0	0	0	3	0	0	0	0	0
15:00:00	5	0	1769	0	2	0	2	0	59	0	0	0	0	0	3	0	0	0	0	0
15:15:00	5	0	1852	83	3	1	2	0	68	9	0	0	0	0	4	1	0	0	0	0
15:30:00	5	0	1953	101	3	0	2	0	72	4	0	0	0	0	4	0	0	0	0	0
15:45:00	5	0	2060	107	4	1	2	0	75	3	0	0	0	0	5	1	0	0	0	0
16:00:00	7	2	2140	80	6	2	2	0	81	6	0	0	0	0	5	0	0	0	0	0
16:15:00	7	0	2228	88	6	0	2	0	87	6	0	0	0	0	5	0	0	0	0	0
16:30:00	7	0	2352	124	6	0	2	0	96	9	0	0	0	0	6	1	0	0	0	0
16:45:00	7	0	2469	117	6	0	2	0	101	5	0	0	0	0	6	0	0	0	0	0
17:00:00	8	1	2590	121	6	0	2	0	106	5	0	0	0	0	6	0	0	0	0	0
17:15:00	8	0	2689	99	6	0	2	0	109	3	0	0	0	0	6	0	0	0	0	0
17:30:00	8	0	2815	126	6	0	2	0	115	6	0	0	0	0	6	0	0	0	0	0
17:45:00	8	0	2909	94	7	1	2	0	122	7	0	0	0	0	6	0	0	0	0	0
18:00:00	8	0	3010	101	7	0	2	0	128	6	0	0	0	0	6	0	0	0	0	0
18:15:00	8	0	3010	0	7	0	2	0	128	0	0	0	0	0	6	0	0	0	0	0
18:15:15	8	0	3010	0	7	0	2	0	128	0	0	0	0	0	6	0	0	0	0	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 5-Dec-19 Site #: 1919400001

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Buses - West Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		West Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
7:45:00	1	1	0	0	0	0	3	2	0	0	1	1	0	0	0	0	0	0	0	0
8:00:00	1	0	0	0	0	0	3	0	0	0	1	0	0	0	0	0	0	0	0	0
8:15:00	1	0	0	0	1	1	3	0	0	0	2	1	0	0	0	0	0	0	0	0
8:30:00	2	1	1	1	3	2	3	0	0	0	2	0	0	0	0	0	0	0	0	0
8:45:00	4	2	1	0	3	0	4	1	0	0	2	0	0	0	0	0	0	0	0	0
9:00:00	4	0	2	1	3	0	4	0	0	0	2	0	0	0	0	0	0	0	0	0
9:15:00	5	1	2	0	3	0	4	0	1	1	2	0	0	0	0	0	0	0	0	0
9:30:00	5	0	2	0	3	0	4	0	1	0	2	0	0	0	0	0	0	0	0	0
9:45:00	5	0	3	1	3	0	4	0	1	0	2	0	0	0	0	0	0	0	0	0
10:00:00	5	0	3	0	3	0	4	0	1	0	2	0	0	0	0	0	0	0	0	0
10:15:00	5	0	3	0	3	0	4	0	1	0	2	0	0	0	0	0	0	0	0	0
15:00:00	5	0	3	0	3	0	4	0	1	0	2	0	0	0	0	0	0	0	0	0
15:15:00	5	0	3	0	3	0	4	0	1	0	2	0	0	0	0	0	0	0	0	0
15:30:00	6	1	3	0	3	0	5	1	1	0	2	0	0	0	0	0	0	0	0	0
15:45:00	6	0	4	1	3	0	5	0	1	0	2	0	0	0	0	0	0	0	0	0
16:00:00	7	1	5	1	3	0	7	2	1	0	2	0	0	0	0	0	0	0	0	0
16:15:00	9	2	6	1	3	0	7	0	1	0	2	0	0	0	0	0	0	0	0	0
16:30:00	11	2	7	1	3	0	8	1	1	0	2	0	0	0	0	0	0	0	0	0
16:45:00	13	2	8	1	4	1	8	0	1	0	3	1	0	0	0	0	0	0	0	0
17:00:00	13	0	8	0	5	1	9	1	1	0	3	0	0	0	0	0	0	0	0	0
17:15:00	18	5	10	2	5	0	9	0	1	0	3	0	0	0	0	0	0	0	0	0
17:30:00	19	1	16	6	5	0	9	0	1	0	3	0	0	0	0	0	0	0	0	0
17:45:00	21	2	16	0	5	0	9	0	1	0	3	0	0	0	0	0	0	0	0	0
18:00:00	21	0	16	0	5	0	9	0	1	0	3	0	0	0	0	0	0	0	0	0
18:15:00	21	0	16	0	5	0	9	0	1	0	3	0	0	0	0	0	0	0	0	0
18:15:15	21	0	16	0	5	0	9	0	1	0	3	0	0	0	0	0	0	0	0	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 10:00:00

One Hour Peak
From: 7:30:00
To: 8:30:00

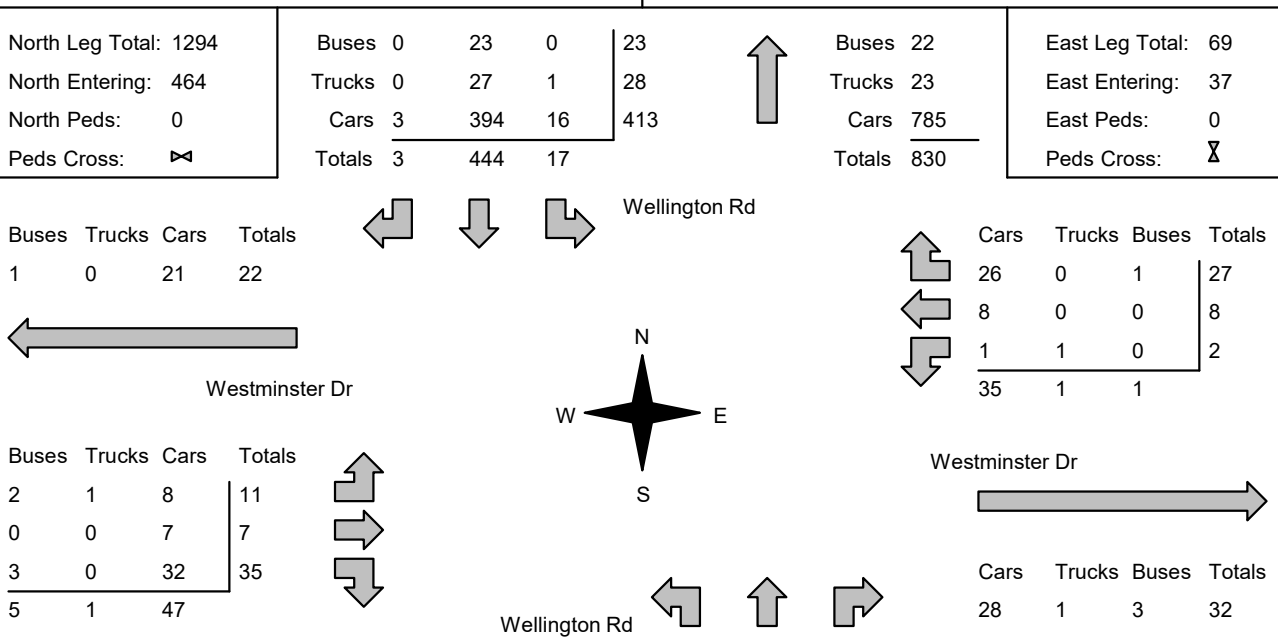
Municipality: London
Site #: 1919400002
Intersection: Wellington Rd & Westminster Dr
TFR File #: 1
Count date: 5-Dec-19

Weather conditions:

Person counted:
Person prepared:
Person checked:

** Non-Signalized Intersection **

Major Road: Wellington Rd runs N/S



Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 16:15:00
To: 17:15:00

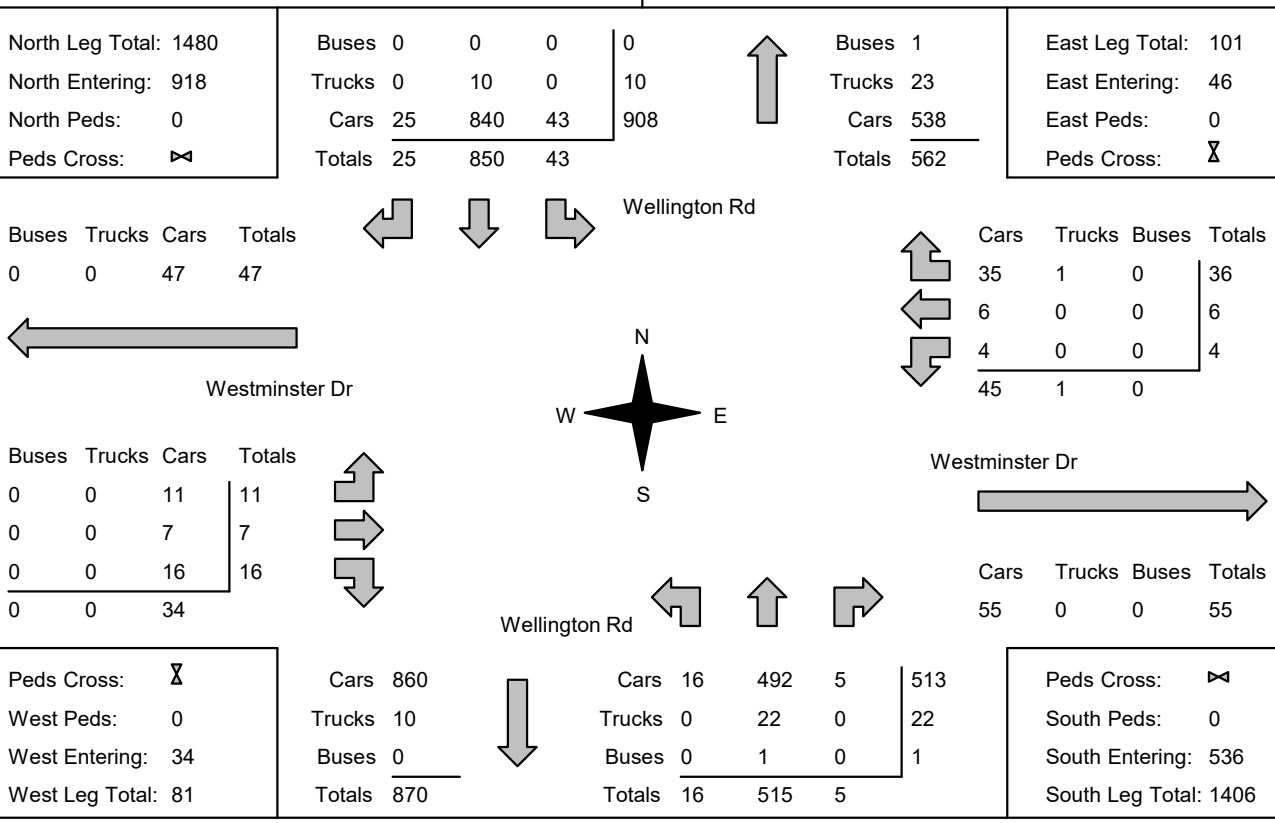
Municipality: London
Site #: 1919400002
Intersection: Wellington Rd & Westminster Dr
TFR File #: 1
Count date: 5-Dec-19

Weather conditions:

Person counted:
Person prepared:
Person checked:

** Non-Signalized Intersection **

Major Road: Wellington Rd runs N/S



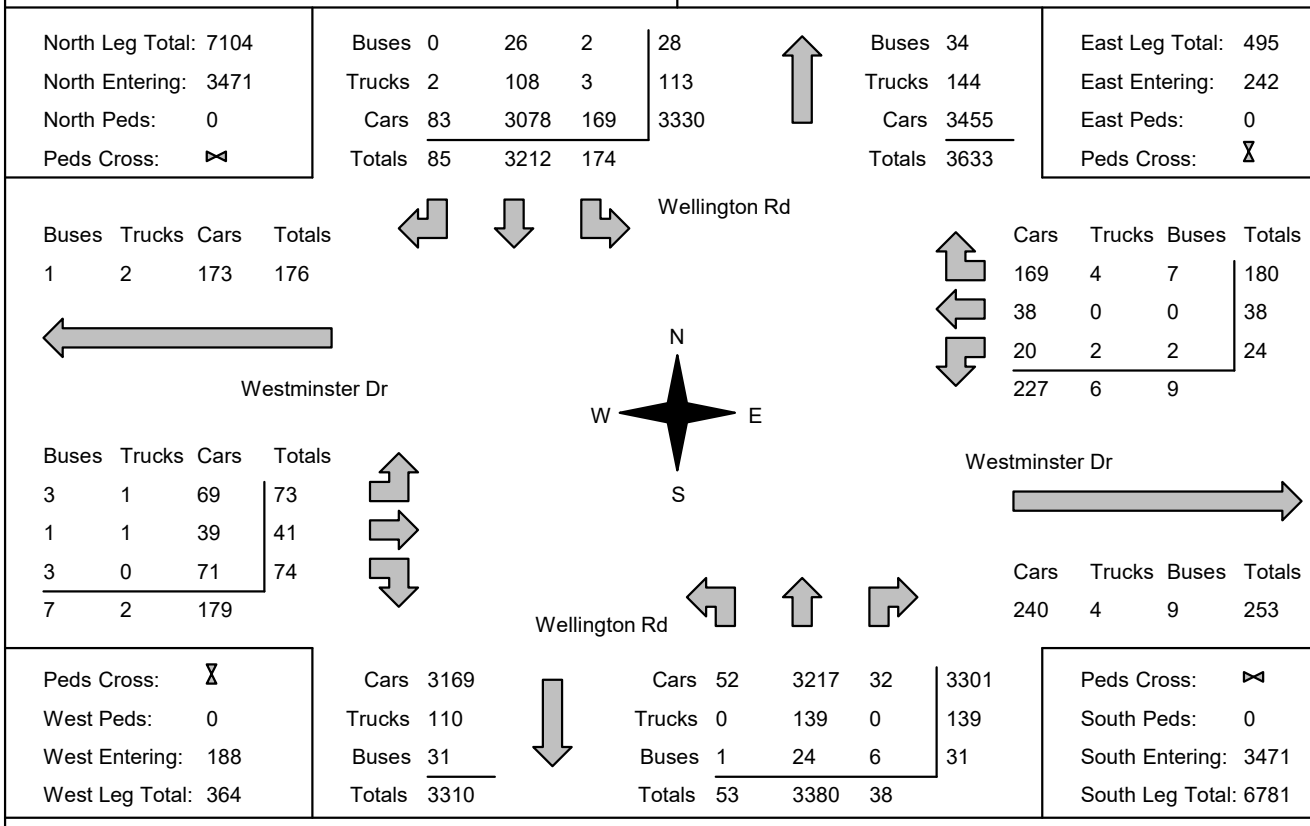
Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Total Count Diagram

Municipality: London Site #: 1919400002 Intersection: Wellington Rd & Westminster Dr TFR File #: 1 Count date: 5-Dec-19	Weather conditions: Person counted: Person prepared: Person checked:
** Non-Signalized Intersection **	Major Road: Wellington Rd runs N/S



Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Traffic Count Summary

Intersection: Wellington Rd & Westminster Dr | Count Date: 5-Dec-19 | Municipality: London

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Buses				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0
8:00:00	11	378	5	394	0
9:00:00	21	359	9	389	0
10:00:00	17	249	12	278	0
15:00:00	0	0	0	0	0
16:00:00	54	698	21	773	0
17:00:00	37	834	25	896	0
18:00:00	34	694	13	741	0
Totals:	174	3212	85	3471	0

North/South Total Approaches: 6942

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Buses				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0
8:00:00	7	758	11	776	0
9:00:00	8	632	8	648	0
10:00:00	3	527	7	537	0
15:00:00	0	0	0	0	0
16:00:00	11	465	5	481	0
17:00:00	21	523	6	550	0
18:00:00	3	475	1	479	0
S Totals:	53	3380	38	3471	0

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Buses				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0
8:00:00	2	5	27	34	0
9:00:00	3	8	22	33	0
10:00:00	5	7	37	49	0
15:00:00	0	0	0	0	0
16:00:00	9	6	38	53	0
17:00:00	3	5	30	38	0
18:00:00	2	7	26	35	0
Totals:	24	38	180	242	0

East/West Total Approaches: 430

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Buses				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0
8:00:00	15	5	28	48	0
9:00:00	9	5	11	25	0
10:00:00	10	7	4	21	0
15:00:00	0	0	0	0	0
16:00:00	18	10	5	33	0
17:00:00	10	5	14	29	0
18:00:00	11	9	12	32	0
W Totals:	73	41	74	188	0

Calculated Values for Traffic Crossing Major Street

Hours Ending:	7:00	8:00	9:00	10:00	15:00	16:00	17:00	18:00
Crossing Values:	0	22	20	22	0	37	18	22

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 5-Dec-19 Site #: 1919400002

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Buses - North Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	1	1	49	49	1	1	0	0	4	4	0	0	0	0	0	0	0	0	0	0
7:30:00	4	3	117	68	5	4	0	0	8	4	0	0	0	0	0	0	0	0	0	0
7:45:00	8	4	205	88	5	0	0	0	17	9	0	0	0	0	16	16	0	0	0	0
8:00:00	11	3	336	131	5	0	0	0	24	7	0	0	0	0	18	2	0	0	0	0
8:15:00	13	2	424	88	7	2	0	0	29	5	0	0	0	0	19	1	0	0	0	0
8:30:00	20	7	511	87	8	1	1	1	35	6	0	0	0	0	23	4	0	0	0	0
8:45:00	24	4	588	77	10	2	2	1	42	7	0	0	0	0	23	0	0	0	0	0
9:00:00	29	5	663	75	14	4	2	0	51	9	0	0	1	1	23	0	0	0	0	0
9:15:00	33	4	724	61	20	6	2	0	59	8	1	1	1	0	23	0	0	0	0	0
9:30:00	36	3	777	53	20	0	3	1	67	8	1	0	1	0	24	1	0	0	0	0
9:45:00	42	6	832	55	20	0	3	0	74	7	1	0	1	0	25	1	0	0	0	0
10:00:00	45	3	881	49	24	4	3	0	80	6	2	1	1	0	25	0	0	0	0	0
10:15:00	45	0	881	0	24	0	3	0	80	0	2	0	1	0	25	0	0	0	0	0
15:00:00	45	0	881	0	24	0	3	0	80	0	2	0	1	0	25	0	0	0	0	0
15:15:00	61	16	1042	161	26	2	3	0	82	2	2	0	1	0	25	0	0	0	0	0
15:30:00	72	11	1207	165	33	7	3	0	84	2	2	0	2	1	25	0	0	0	0	0
15:45:00	85	13	1386	179	40	7	3	0	86	2	2	0	2	0	25	0	0	0	0	0
16:00:00	98	13	1570	184	45	5	3	0	89	3	2	0	2	0	25	0	0	0	0	0
16:15:00	102	4	1760	190	49	4	3	0	95	6	2	0	2	0	26	1	0	0	0	0
16:30:00	110	8	1968	208	53	4	3	0	98	3	2	0	2	0	26	0	0	0	0	0
16:45:00	121	11	2182	214	61	8	3	0	99	1	2	0	2	0	26	0	0	0	0	0
17:00:00	135	14	2388	206	70	9	3	0	104	5	2	0	2	0	26	0	0	0	0	0
17:15:00	145	10	2600	212	74	4	3	0	105	1	2	0	2	0	26	0	0	0	0	0
17:30:00	153	8	2774	174	77	3	3	0	108	3	2	0	2	0	26	0	0	0	0	0
17:45:00	162	9	2930	156	82	5	3	0	108	0	2	0	2	0	26	0	0	0	0	0
18:00:00	169	7	3078	148	83	1	3	0	108	0	2	0	2	0	26	0	0	0	0	0
18:15:00	169	0	3078	0	83	0	3	0	108	0	2	0	2	0	26	0	0	0	0	0
18:15:15	169	0	3078	0	83	0	3	0	108	0	2	0	2	0	26	0	0	0	0	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 5-Dec-19 Site #: 1919400002

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Buses - East Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		East Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	1	1	0	0	6	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	1	0	0	0	11	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45:00	1	0	4	4	18	7	0	0	0	0	0	0	0	0	0	0	1	1	0	0
8:00:00	1	0	5	1	26	8	1	1	0	0	0	0	0	0	0	0	1	0	0	0
8:15:00	2	1	7	2	32	6	1	0	0	0	0	0	0	0	0	0	1	0	0	0
8:30:00	2	0	8	1	37	5	1	0	0	0	0	0	0	0	0	0	1	0	0	0
8:45:00	3	1	10	2	41	4	1	0	0	0	0	0	0	0	0	0	1	0	0	0
9:00:00	4	1	13	3	45	4	1	0	0	0	0	0	0	0	0	0	4	3	0	0
9:15:00	7	3	15	2	51	6	1	0	0	0	0	0	0	0	0	0	5	1	0	0
9:30:00	8	1	19	4	62	11	1	0	0	0	2	2	0	0	0	0	5	0	0	0
9:45:00	8	0	20	1	67	5	2	1	0	0	3	1	0	0	0	0	5	0	0	0
10:00:00	8	0	20	0	78	11	2	0	0	0	3	0	0	0	0	0	5	0	0	0
10:15:00	8	0	20	0	78	0	2	0	0	0	3	0	0	0	0	0	5	0	0	0
15:00:00	8	0	20	0	78	0	2	0	0	0	3	0	0	0	0	0	5	0	0	0
15:15:00	8	0	21	1	84	6	2	0	0	0	3	0	0	0	0	0	5	0	0	0
15:30:00	9	1	23	2	89	5	2	0	0	0	3	0	0	0	0	0	5	0	0	0
15:45:00	13	4	24	1	101	12	2	0	0	0	3	0	0	0	0	0	5	0	0	0
16:00:00	15	2	26	2	114	13	2	0	0	0	3	0	2	2	0	0	7	2	0	0
16:15:00	15	0	26	0	119	5	2	0	0	0	3	0	2	0	0	0	7	0	0	0
16:30:00	17	2	28	2	127	8	2	0	0	0	3	0	2	0	0	0	7	0	0	0
16:45:00	18	1	31	3	135	8	2	0	0	0	3	0	2	0	0	0	7	0	0	0
17:00:00	18	0	31	0	143	8	2	0	0	0	4	1	2	0	0	0	7	0	0	0
17:15:00	19	1	32	1	154	11	2	0	0	0	4	0	2	0	0	0	7	0	0	0
17:30:00	19	0	33	1	159	5	2	0	0	0	4	0	2	0	0	0	7	0	0	0
17:45:00	19	0	36	3	164	5	2	0	0	0	4	0	2	0	0	0	7	0	0	0
18:00:00	20	1	38	2	169	5	2	0	0	0	4	0	2	0	0	0	7	0	0	0
18:15:00	20	0	38	0	169	0	2	0	0	0	4	0	2	0	0	0	7	0	0	0
18:15:15	20	0	38	0	169	0	2	0	0	0	4	0	2	0	0	0	7	0	0	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 5-Dec-19 Site #: 1919400002

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Buses - South Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		South Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	122	122	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	2	2	304	182	5	3	0	0	5	5	0	0	0	0	0	0	0	0	0	0
7:45:00	4	2	514	210	6	1	0	0	13	8	0	0	0	0	6	6	1	1	0	0
8:00:00	7	3	726	212	9	3	0	0	16	3	0	0	0	0	16	10	2	1	0	0
8:15:00	9	2	902	176	9	0	0	0	20	4	0	0	1	1	17	1	2	0	0	0
8:30:00	12	3	1055	153	10	1	0	0	27	7	0	0	1	0	19	2	3	1	0	0
8:45:00	13	1	1195	140	12	2	0	0	33	6	0	0	1	0	19	0	3	0	0	0
9:00:00	14	1	1331	136	14	2	0	0	40	7	0	0	1	0	19	0	5	2	0	0
9:15:00	15	1	1448	117	19	5	0	0	47	7	0	0	1	0	19	0	5	0	0	0
9:30:00	17	2	1588	140	19	0	0	0	53	6	0	0	1	0	21	2	5	0	0	0
9:45:00	17	0	1712	124	20	1	0	0	58	5	0	0	1	0	21	0	5	0	0	0
10:00:00	17	0	1829	117	21	1	0	0	66	8	0	0	1	0	22	1	5	0	0	0
10:15:00	17	0	1829	0	21	0	0	0	66	0	0	0	1	0	22	0	5	0	0	0
15:00:00	17	0	1829	0	21	0	0	0	66	0	0	0	1	0	22	0	5	0	0	0
15:15:00	19	2	1939	110	23	2	0	0	73	7	0	0	1	0	22	0	6	1	0	0
15:30:00	23	4	2050	111	23	0	0	0	81	8	0	0	1	0	22	0	6	0	0	0
15:45:00	27	4	2166	116	25	2	0	0	84	3	0	0	1	0	23	1	6	0	0	0
16:00:00	28	1	2267	101	25	0	0	0	92	8	0	0	1	0	23	0	6	0	0	0
16:15:00	34	6	2381	114	26	1	0	0	98	6	0	0	1	0	23	0	6	0	0	0
16:30:00	42	8	2519	138	27	1	0	0	108	10	0	0	1	0	23	0	6	0	0	0
16:45:00	42	0	2629	110	28	1	0	0	113	5	0	0	1	0	24	1	6	0	0	0
17:00:00	49	7	2764	135	31	3	0	0	117	4	0	0	1	0	24	0	6	0	0	0
17:15:00	50	1	2873	109	31	0	0	0	120	3	0	0	1	0	24	0	6	0	0	0
17:30:00	51	1	3011	138	32	1	0	0	127	7	0	0	1	0	24	0	6	0	0	0
17:45:00	51	0	3110	99	32	0	0	0	133	6	0	0	1	0	24	0	6	0	0	0
18:00:00	52	1	3217	107	32	0	0	0	139	6	0	0	1	0	24	0	6	0	0	0
18:15:00	52	0	3217	0	32	0	0	0	139	0	0	0	1	0	24	0	6	0	0	0
18:15:15	52	0	3217	0	32	0	0	0	139	0	0	0	1	0	24	0	6	0	0	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 5-Dec-19 Site #: 1919400002

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Buses - West Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		West Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	3	3	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	8	5	2	2	4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45:00	11	3	4	2	12	8	1	1	0	0	0	0	0	0	0	0	1	1	0	0
8:00:00	14	3	5	1	27	15	1	0	0	0	0	0	0	0	0	0	1	0	0	0
8:15:00	14	0	6	1	32	5	1	0	0	0	0	0	0	0	0	0	2	1	0	0
8:30:00	16	2	9	3	36	4	1	0	0	0	0	0	2	2	0	0	3	1	0	0
8:45:00	17	1	10	1	36	0	1	0	0	0	0	0	2	0	0	0	3	0	0	0
9:00:00	21	4	10	0	36	0	1	0	0	0	0	0	2	0	0	0	3	0	0	0
9:15:00	23	2	13	3	39	3	1	0	0	0	0	0	2	0	0	0	3	0	0	0
9:30:00	26	3	13	0	39	0	1	0	0	0	0	0	2	0	0	0	3	0	0	0
9:45:00	31	5	16	3	40	1	1	0	0	0	0	0	2	0	0	0	3	0	0	0
10:00:00	31	0	17	1	40	0	1	0	0	0	0	0	2	0	0	0	3	0	0	0
10:15:00	31	0	17	0	40	0	1	0	0	0	0	0	2	0	0	0	3	0	0	0
15:00:00	31	0	17	0	40	0	1	0	0	0	0	0	2	0	0	0	3	0	0	0
15:15:00	36	5	18	1	42	2	1	0	0	0	0	0	2	0	1	1	3	0	0	0
15:30:00	41	5	21	3	42	0	1	0	0	0	0	0	2	0	1	0	3	0	0	0
15:45:00	42	1	26	5	44	2	1	0	0	0	0	0	2	0	1	0	3	0	0	0
16:00:00	49	7	26	0	45	1	1	0	0	0	0	0	2	0	1	0	3	0	0	0
16:15:00	50	1	27	1	48	3	1	0	0	0	0	0	3	1	1	0	3	0	0	0
16:30:00	53	3	29	2	49	1	1	0	0	0	0	0	3	0	1	0	3	0	0	0
16:45:00	54	1	30	1	53	4	1	0	0	0	0	0	3	0	1	0	3	0	0	0
17:00:00	58	4	31	1	59	6	1	0	0	0	0	0	3	0	1	0	3	0	0	0
17:15:00	61	3	34	3	64	5	1	0	0	0	0	0	3	0	1	0	3	0	0	0
17:30:00	62	1	36	2	65	1	1	0	0	0	0	0	3	0	1	0	3	0	0	0
17:45:00	65	3	38	2	70	5	1	0	1	1	0	0	3	0	1	0	3	0	0	0
18:00:00	69	4	39	1	71	1	1	0	1	0	0	0	3	0	1	0	3	0	0	0
18:15:00	69	0	39	0	71	0	1	0	1	0	0	0	3	0	1	0	3	0	0	0
18:15:15	69	0	39	0	71	0	1	0	1	0	0	0	3	0	1	0	3	0	0	0

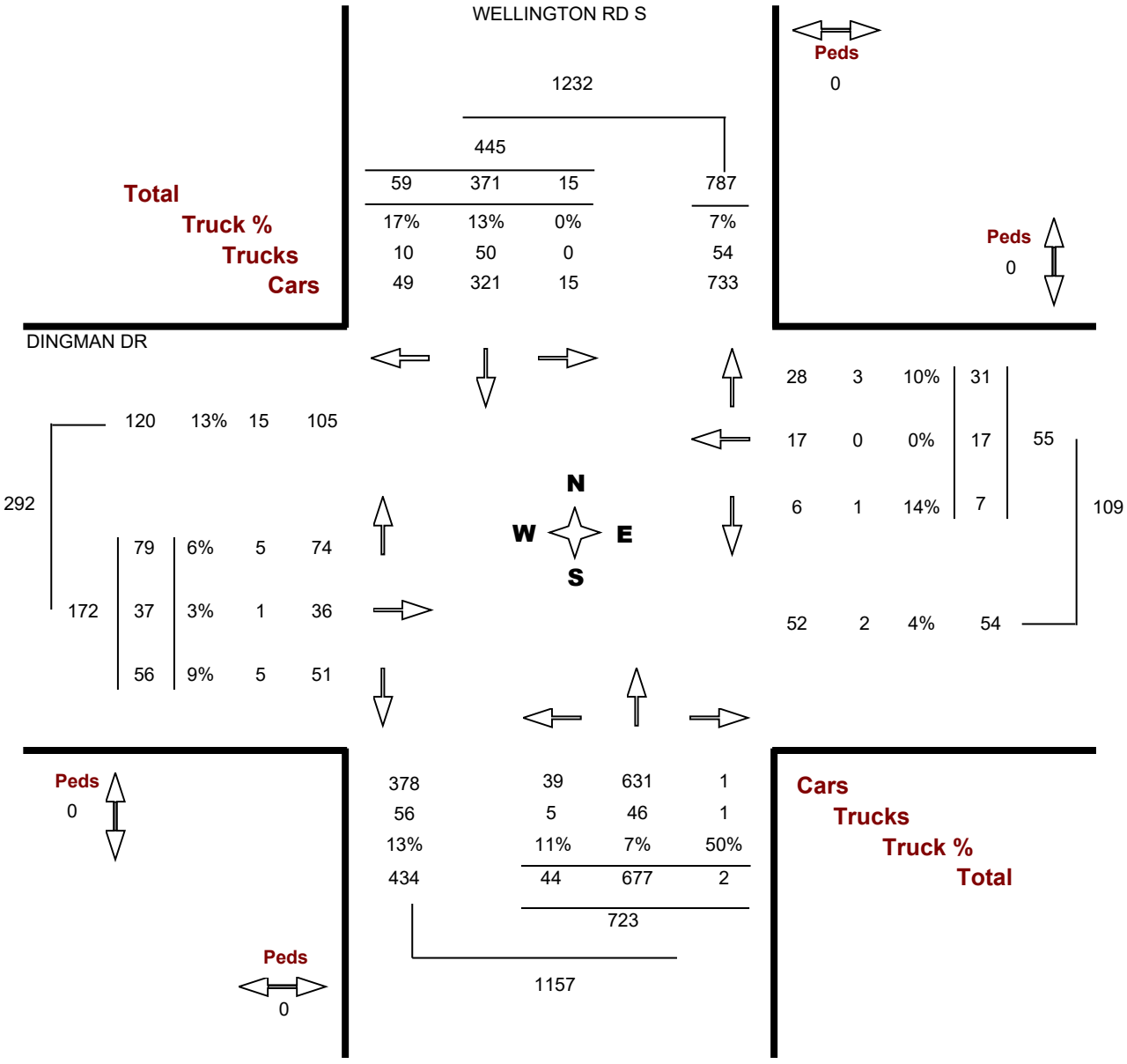
Turning Movements Report - AM Period

Location..... DINGMAN DR @ WELLINGTON RD S

Municipality..... LONDON

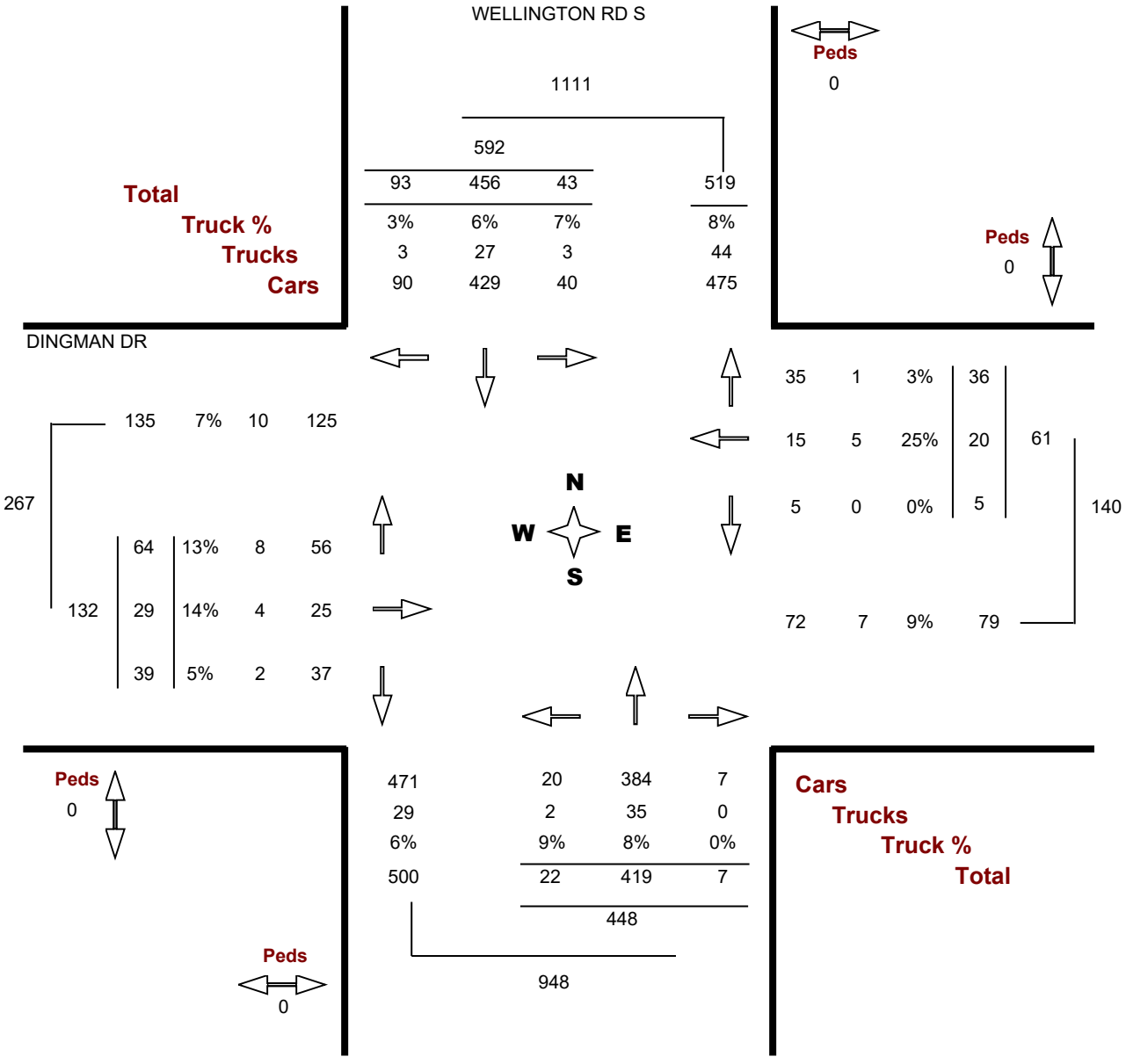
GeoID..... INT6156

Count Date..... Wednesday, 10 May, 2017 **Peak Hour.....** 07:30 AM — 08:30 AM



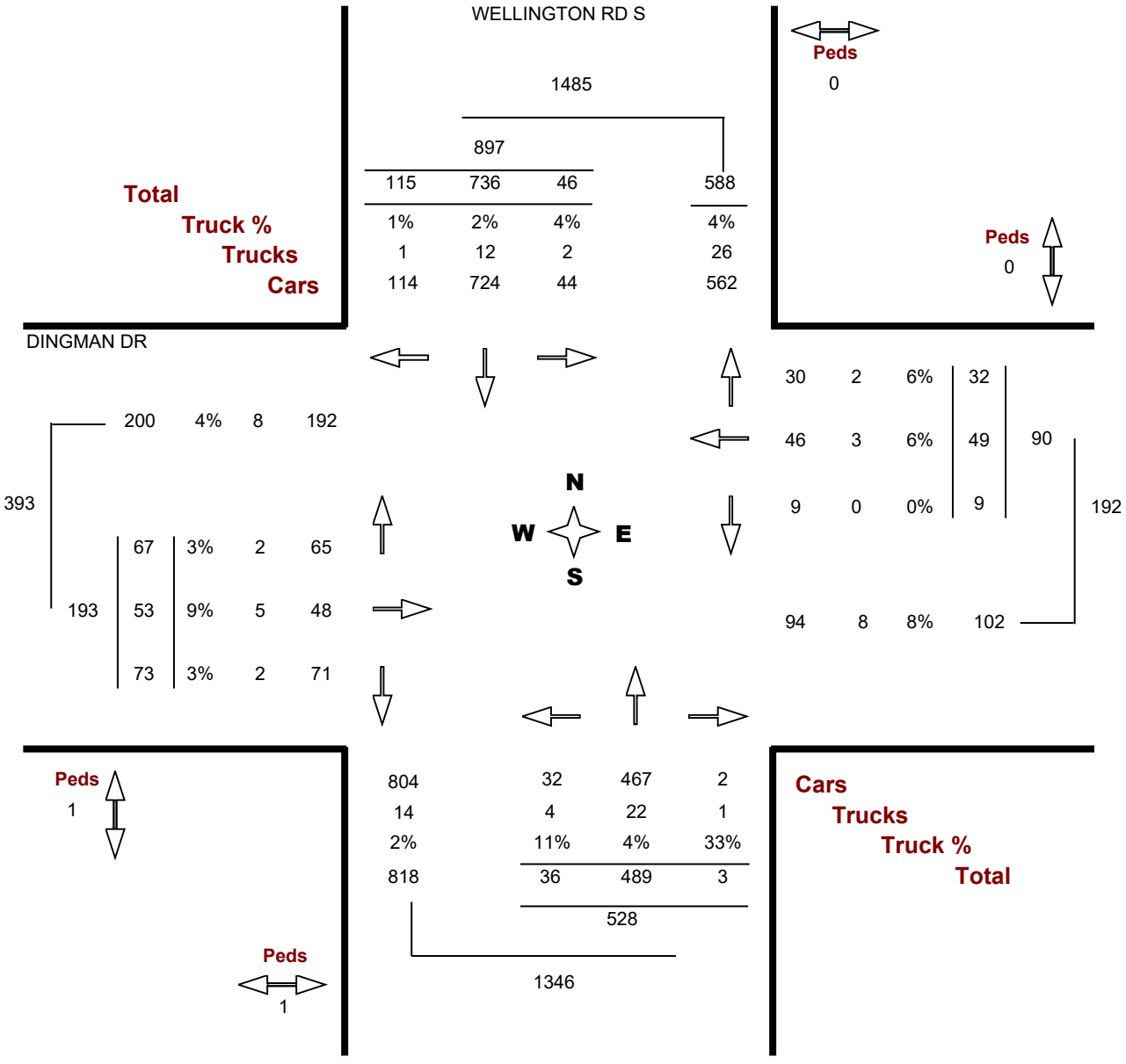
Turning Movements Report - MD Period

Location..... DINGMAN DR @ WELLINGTON RD S
Municipality..... LONDON
GeoID..... INT6156
Count Date..... Wednesday, 10 May, 2017 **Peak Hour.....** 12:00 PM — 01:00 PM



Turning Movements Report - PM Period

Location..... DINGMAN DR @ WELLINGTON RD S
Municipality..... LONDON
GeoID..... INT6156
Count Date..... Wednesday, 10 May, 2017 **Peak Hour.....** 04:15 PM — 05:15 PM



Appendix B

Traffic Signal Timing Plans

SEPAC ECOM All Data

8/16/2019
8:20:18AM

Intersection Name: **Manning Dr @ Wellington Rd** Intersection Alias: **524**

Access Data

1 :**1200 Baud**
3 :**9600 Baud**

Access Code: **9999** Channel: 26 Address: **8**

Revision: **3.32m** IP Address:

Phase Initialization Data

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Initial	0-None	4-Grn	0-None	1-Inact	0-None	4-Grn	0-None	1-Inact	0-None	0-None	0-None	0-None	0-None	0-None	0-None	0-None

PHASE DATA

	Vehical Basic Timings						Misc Timings						Pedestrian Timings						
Phase	Min Green	Passage	Max1	Max2	Yellow	All Red	Green Delay	Yellow Delay	Walk Offset Time	Walk Offset Mode	Bike Green	Bike Psg	Walk	Ped Clr	Alt Walk	Alt Ped Clr	Flash Walk	Ext Ped Clr	Actuated Rest in Walk
1	0	0.0	0	0	3.0	0.0	0.0	0.0	0	0-Advance	0.0	0.0	0	0	0	0	No	0	No
2	7	3.0	50	40	4.6	2.0	0.0	0.0	0	0-Advance	0.0	0.0	7	10	0	0	No	0	No
3	0	0.0	0	0	3.0	0.0	0.0	0.0	0	0-Advance	0.0	0.0	0	0	0	0	No	0	No
4	7	3.0	25	20	4.6	1.9	0.0	0.0	0	0-Advance	0.0	0.0	7	13	0	0	No	0	No
5	0	0.0	0	0	3.0	0.0	0.0	0.0	0	0-Advance	0.0	0.0	0	0	0	0	No	0	No
6	7	3.0	50	40	4.6	2.0	0.0	0.0	0	0-Advance	0.0	0.0	7	10	0	0	No	0	No
7	0	0.0	0	0	3.0	0.0	0.0	0.0	0	0-Advance	0.0	0.0	0	0	0	0	No	0	No
8	7	3.0	25	20	4.6	1.9	0.0	0.0	0	0-Advance	0.0	0.0	7	13	0	0	No	0	No
9	0	0.0	0	0	3.0	0.0	0.0	0.0	0	0-Advance	0.0	0.0	0	0	0	0	No	0	No
10	0	0.0	0	0	3.0	0.0	0.0	0.0	0	0-Advance	0.0	0.0	0	0	0	0	No	0	No
11	0	0.0	0	0	3.0	0.0	0.0	0.0	0	0-Advance	0.0	0.0	0	0	0	0	No	0	No
12	0	0.0	0	0	3.0	0.0	0.0	0.0	0	0-Advance	0.0	0.0	0	0	0	0	No	0	No
13	0	0.0	0	0	3.0	0.0	0.0	0.0	0	0-Advance	0.0	0.0	0	0	0	0	No	0	No
14	0	0.0	0	0	3.0	0.0	0.0	0.0	0	0-Advance	0.0	0.0	0	0	0	0	No	0	No
15	0	0.0	0	0	3.0	0.0	0.0	0.0	0	0-Advance	0.0	0.0	0	0	0	0	No	0	No
16	0	0.0	0	0	3.0	0.0	0.0	0.0	0	0-Advance	0.0	0.0	0	0	0	0	No	0	No

	Vehicle Density Timings						General Control				Miscellaneous					Special Sequence		
Ph.	Added Initial	Max Initial	Time B4 Redu	Car B4 Redu	Time To Redu	Min Gap	Non-Act Response	Veh Recall	Ped Recall	Recall Delay	Non Lock	Dual Entry	Last Car Pass	Condit Service	No Simu Gap Out	Omit	Minus Yel	Omit Call
1	0.0	0	0	0	0	0.0	None	None	None	0	Yes	No	No	No	No	2	0	0
2	0.0	0	0	0	0	0.0	NonActI	Max	None	0	Yes	Yes	No	No	No	0	0	0
3	0.0	0	0	0	0	0.0	None	None	None	0	Yes	No	No	No	No	4	0	0
4	0.0	0	0	0	0	0.0	NonActII	None	None	0	Yes	Yes	No	No	No	0	0	0
5	0.0	0	0	0	0	0.0	None	None	None	0	Yes	No	No	No	No	6	0	0
6	0.0	0	0	0	0	0.0	NonActI	Max	None	0	Yes	Yes	No	No	No	0	0	0
7	0.0	0	0	0	0	0.0	None	None	None	0	Yes	No	No	No	No	8	0	0
8	0.0	0	0	0	0	0.0	NonActII	None	None	0	Yes	Yes	No	No	No	0	0	0
9	0.0	0	0	0	0	0.0	None	None	None	0	No	No	No	No	No	0	0	0
10	0.0	0	0	0	0	0.0	None	None	None	0	No	No	No	No	No	0	0	0
11	0.0	0	0	0	0	0.0	None	None	None	0	No	No	No	No	No	0	0	0
12	0.0	0	0	0	0	0.0	None	None	None	0	No	No	No	No	No	0	0	0
13	0.0	0	0	0	0	0.0	None	None	None	0	No	No	No	No	No	0	0	0
14	0.0	0	0	0	0	0.0	None	None	None	0	No	No	No	No	No	0	0	0

15	0.0	0	0	0	0	0.0	None	None	None	0	No	No	No	No	No	0	0	0
16	0.0	0	0	0	0	0.0	None	None	None	0	No	No	No	No	No	0	0	0

Vehical Detector Phase Assignment

	Assign Phase	Mode	Switch Phase	Extend	Delay
Veh Det:8	8	Veh	0	0.0	5
Veh Det:7	7	Veh	0	0.0	0
Veh Det:6	6	Veh	0	0.0	0
Veh Det:5	5	Veh	0	0.0	0
Veh Det:4	4	Veh	0	0.0	5
Veh Det:3	3	Veh	0	0.0	0
Veh Det:2	2	Veh	0	0.0	0
Veh Det:1	1	Veh	0	0.0	0

Pedestrian Detector

Assign Phase	Mode	Switch Phase	Extend	Delay
Default Data				

Special Detector Phase Assignment

Assign Phase	Mode	Switch Phase	Extend	Delay
:				
Default Data				

Unit Data

General Control

Startup Time: 8 sec
Startup State: All Red
Red Revert: 4.0 sec
Auto Ped Clr: No
Stop T Reset: No
Alt Sequence: 0
Special Seq: 0-Standard

Ring	Input Respons	Output Selection
1	Ring 1	Ring 1
2	Ring 2	Ring 2
3	None	None
4	None	None

I/O Modes:

ABC Input(Entry) Modes: 0
D Input(Entry) Modes: 0
ABC Output(O/STS) Modes: 0
D Output(O/STS) Modes: 0

Remote Flash

Test A = Flash

Phase	Entry	Exit

Default Data
- No Flash

Default Data
- No Flash

Overlaps

Overlaps

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Phase(s)																

Start Green

Overlaps

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Phase(s)																

Ring

Phase	Ring	Next Phase
2	1	3
4	1	1
6	2	7
8	2	5

Phase(s)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Concurrent Phases	1	2	3	4	1	1	3	3	9	10	11	12	13	14	15	16
	5	5	7	7	2	2	4	4								
	6	6	8	8	5	6	7	8								

Alternate Sequences

No Alternate Sequences Programmed

Port 1 Data

BIU Addr	Port Status	Basic Det	Message 40

Default Data

Signal Driver Ouput

Channel	Control	Hardware Pins
1	1 - Veh Phase 1	1 - Phase 1 RYG
2	2 - Veh Phase 2	2 - Phase 2 RYG
3	3 - Veh Phase 3	3 - Phase 3 RYG
4	4 - Veh Phase 4	4 - Phase 4 RYG
5	5 - Veh Phase 5	5 - Phase 5 RYG
6	6 - Veh Phase 6	6 - Phase 6 RYG
7	7 - Veh Phase 7	7 - Phase 7 RYG
8	8 - Veh Phase 8	8 - Phase 8 RYG
9	18 - Ped Phase 2	10 - Phase 2 DPW
10	20 - Ped Phase 4	12 - Phase 4 DPW
11	22 - Ped Phase 6	14 - Phase 6 DPW
12	24 - Ped Phase 8	16 - Phase 8 DPW
13	33 - Overlap A	17 - Overlap A RYG
14	34 - Overlap B	18 - Overlap B RYG
15	35 - Overlap C	19 - Overlap C RYG
16	36 - Overlap D	20 - Overlap D RYG
17	17 - Ped Phase 1	9 - Phase 1 DPW
18	19 - Ped Phase 3	11 - Phase 3 DPW
19	21 - Ped Phase 5	13 - Phase 5 DPW
20	23 - Ped Phase 7	15 - Phase 7 DPW

Coordination Data

Dial/Split **Cycle**

/

General Coordination Data

Operation Mode: 1=Auto
Coordination Mode: 1=Yield
Maximun Mode: 0=Inhibit
Correction Mode: 2=Short Way

Offset Mode: 0=Beg Grn
Force Mode: 1=Cycle
Max Dwell Time: 0
Yield Period: 0

Manual Dial: 1
Manual Split: 1
Manual Offset: 1

Split Times and Phase Modes

Dial / **Split**

Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode

Traffic Plan Data

Plan: //

Offset Time:
Mode:
Alternat Sequence:
Special Function:
Rg 2 Lag Time:
Correction Mode:
Rg 3 Lag Time:
Rg 4 Lag Time:

Local TBC Data

Start of Daylight Saving Month: 3 Week: 2
End of Daylight Saving Month: 11 Week: 1

Cycle Zero Reference Hours: 24 Min: 0

Source Day	Equate Days 1	2	3	4	5	6	7
1	51	0	0	0	0	0	0
2	3	4	5	6	0	0	0

Traffic Data

Event	Day	Time	D/S/O	flash	PHASE FUNCTION 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	1	0:1	0/0/0			X		X		X		X								
2	2	0:1	0/0/0			X		X		X		X								
3	2	6:30	0/0/4																	
4	2	19:0	0/0/0			X		X		X		X								
5	7	0:1	0/0/0			X		X		X		X								

AUX. Events

Event	Program Day	Hour	Min.	Aux Ouputs 1	2	3	Det. Diag. D1	Det. Rpt. D2	Det. Mult100 D3	Dimming	Special Function Outputs 1	2	3	4	5	6	7	8
1	1	0	1				X	X										
2	2	0	1				X	X										
3	2	8	0					X										
4	2	18	0				X	X										
5	7	0	1				X	X										

Event	Month	Day	Year	Special Day	Special Week
1	2	16	15	51	0
2	4	3	15	51	0
3	5	18	15	51	0
4	8	3	15	51	0
5	9	7	15	51	0
6	10	12	15	51	0
7	2	15	16	51	0
8	3	25	16	51	0
9	5	23	16	51	0
10	8	1	16	51	0
11	9	5	16	51	0
12	10	10	16	51	0
13	2	20	17	51	0
14	4	14	17	51	0
15	5	22	17	51	0
16	8	7	17	51	0
17	9	4	17	51	0
18	10	9	17	51	0
19	2	19	18	51	0
20	3	30	18	51	0
21	5	21	18	51	0
22	8	6	18	51	0
23	9	3	18	51	0
24	10	8	18	51	0
25	2	18	19	51	0
26	4	19	19	51	0
27	5	20	19	51	0
28	8	5	19	51	0
29	9	2	19	51	0
30	10	14	19	51	0
31	2	17	20	51	0
32	4	10	20	51	0
33	5	18	20	51	0
34	8	3	20	51	0
35	9	7	20	51	0
36	10	12	20	51	0
37	2	15	21	51	0
38	4	2	21	51	0
39	5	24	21	51	0
40	8	2	21	51	0
41	9	6	21	51	0
42	10	11	21	51	0
43	2	21	22	51	0
44	4	15	22	51	0
45	5	23	22	51	0
46	8	1	22	51	0
47	9	5	22	51	0
48	10	10	22	51	0
49	2	20	23	51	0
50	4	7	23	51	0
51	5	23	23	51	0
52	8	7	23	51	0
53	9	4	23	51	0
54	10	9	23	51	0
55	1	1	100	1	0
56	7	1	100	1	0
57	12	25	100	1	0
58	12	26	100	1	0

Special Functions

Function

SF1	SF2	SF3	SF4	SF5	SF6	SF7	SF8	SF9	SF10	SF11	SF12	SF13	SF14	SF15	SF16

Phase Function

	PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16
Phase 1 Max2	X															
Phase 2 Max2		X														
Phase 3 Max2			X													
Phase 4 Max2				X												
Phase 5 Max2					X											
Phase 6 Max2						X										
Phase 7 Max2							X									
Phase 8 Max2								X								

Phase Omit

	PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16
Phase 1 Phase Omit									X							
Phase 2 Phase Omit										X						
Phase 3 Phase Omit											X					
Phase 4 Phase Omit												X				
Phase 5 Phase Omit													X			
Phase 6 Phase Omit														X		
Phase 7 Phase Omit															X	
Phase 8 Phase Omit																X

Ped Omit

PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16

Veh Det Coord ReSvc

PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16

Function Phase Recall

PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16

Phase Min Recall

PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16

Veh Det Ped Recall

PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16

Veh Det Bike Recall

PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16

Vehicle Function

Veh Det Switch Omit

PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16

Veh Det Switch Now

PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Veh Det Switch Also

PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Overlap Function

PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Dimming Data

Default Data - No Dimming Programmed

Lane Defination

Lanes	Name	Green Inbound	Yellow Inbound	Red Inbound	Green Outbound	Yellow Outbound

Default Data - Lane Defination

program_day program_hour program_minute LanePhFun

Preemption Data

General Preemption Data

Preempt > Flash	Preempt 2 > Preempt 3	Preempt 4 > Preempt 5
Preempt 1 > Preempt 2	Preempt 3 > Preempt 4	Preempt 5 > Preempt 6

Preempt Timers

Preempt	NLock	Link to Pmpt	Del	Ext	Dur	Max Call	Lock-Out	De Boun ce	Gate Ext	Min G | W	Select Ped Clear	Select Yel	Select Red	Track Grn	Track Ped	Track Yel	Track Red	Dwell Green	Return Ped Clear	Return Yel	Return Red	Sel Ret Mode
1	Y	0	0	0	0	0	0	0.0	0	0	0	13	4.6	2.0	0	0	3.0	0.0	20	0	4.6	2.0	F Aut
2	N	0	0	0	0	0	0	0.0	0	0	0	13	4.6	2.0	0	0	3.0	0.0	20	0	4.6	1.9	F Aut
3	Y	0	0	0	0	0	0	0.0	0	0	0	0	3.0	0.0	0	0	3.0	0.0	0	0	3.0	0.0	F Aut
4	N	0	0	0	0	0	0	0.0	0	0	0	8	4.0	2.0	10	8	4.0	2.0	10	8	4.0	2.0	F Aut
5	N	0	0	0	0	0	0	0.0	0	0	0	8	4.0	2.0	10	8	4.0	2.0	10	8	4.0	2.0	F Aut
6	N	0	0	0	0	0	0	0.0	0	0	0	8	4.0	2.0	10	8	4.0	2.0	10	8	4.0	2.0	F Aut

Preempt 1

Phase	Exit Phase	Exit Calls
4	Yes	No
8	Yes	No

Preempt 2

Phase	Exit Phase	Exit Calls
2	Yes	No
6	Yes	No

Preempt 3

Phase	Exit Phase	Exit Calls

Preempt 4

Phase	Exit Phase	Exit Calls
1	No	Yes
2	No	Yes
3	No	Yes
4	No	Yes
5	No	Yes
6	No	Yes
7	No	Yes
8	No	Yes

Preempt 5

Phase	Exit Phase	Exit Calls
1	No	Yes
2	No	Yes
3	No	Yes
4	No	Yes
5	No	Yes
6	No	Yes
7	No	Yes
8	No	Yes

Preempt 6

Phase	Exit Phase	Exit Calls
1	No	Yes
2	No	Yes
3	No	Yes
4	No	Yes
5	No	Yes
6	No	Yes
7	No	Yes
8	No	Yes

Priority Timers

Priority	Non-Locking	Delay	Extend	Free Dial	Free Split	Min Green	No Lock out	Lock out A	Lock out B	Max Green	Pre-Green	Recall	Excl-co Phase Svc.	Transit Overlap	
														Signal Type	Blankout

Priority Detector Channels

Priority

Detector

Priority Fixed Phases

Priority

Legend: 0 FALSE 1 TRUE
CO-PHASE
QJ-PHASE

Priority

Priority Bank : Level

Partial Priority	Full Priority	Recovery
Alt Seq	Freq. Override	Method
Alt Seq Enabled	Ped skip	Return
Min Walk	Force full Priority	PedWait
	Frequency	PedOverride
	Freq. Level	

Codes: 0 FALSE X TRUE

Priority :

Priority Bank :

Queue Phase Detector Time

Default data

Priority :

Priority Bank :

Queue Phase Detector Time

Default data

Priority :

Priority Bank :

Queue Phase Detector Time

Default data

Priority :

Priority Bank :

Queue Phase Detector Time

Default data

Priority :

Priority Bank :

Queue Phase Detector Time

Default data

Priority :

Priority Bank :

Queue Phase Detector Time

Default data

Priority :								
Bank								
Detector	PE	1A	2A	3A	4A	5A	6A	B
Default Data								

Priority :								
Bank								
Detector	PE	1A	2A	3A	4A	5A	6A	B
Default Data								

Priority :								
Bank								
Detector	PE	1A	2A	3A	4A	5A	6A	B
Default Data								

Priority :								
Bank								
Detector	PE	1A	2A	3A	4A	5A	6A	B
Default Data								

Priority :								
Bank								
Detector	PE	1A	2A	3A	4A	5A	6A	B
Default Data								

Priority :								
Bank								
Detector	PE	1A	2A	3A	4A	5A	6A	B
Default Data								

Preempt 1

Vehical Phases				Pedestrian Phases				Overlaps				
Ph.	Track	Dwell	Cycle	Ph	Track	Dwell	Cycle	Ovlp	Track	Dwell	Cycle	Trail Grn
2	Red	Green	No									
6	Red	Green	No	Default Data				Default Data				

Preempt 2

Vehical Phases				Pedestrian Phases				Overlaps				
Ph.	Track	Dwell	Cycle	Ph.	Track	Dwell	Cycle	Ovlp.	Track	Dwell	Cycle	Trail Grn
4	Red	Green	No									
8	Red	Green	No	Default Data				Default Data				

Preempt 3

Vehical Phases				Pedestrian Phases				Overlaps				
Ph.	Track	Dwell	Cycle	Ph.	Track	Dwell	Cycle	Ovlp.	Track	Dwell	Cycle	Trail Grn
Default Data				Default Data				Default Data				

Preempt 4

Vehical Phases				Pedestrian Phases				Overlaps				
Ph.	Track	Dwell	Cycle	Ph.	Track	Dwell	Cycle	Ovlp.	Track	Dwell	Cycle	Trail Grn
Default Data				Default Data				Default Data				

Preempt 5

Vehical Phases				Pedestrian Phases				Overlaps				
Ph.	Track	Dwell	Cycle	Ph.	Track	Dwell	Cycle	Ovlp.	Track	Dwell	Cycle	Trail Grn
Default Data				Default Data				Default Data				

Preempt 6

Vehical Phases				Pedestrian Phases				Overlaps				
Ph.	Track	Dwell	Cycle	Ph.	Track	Dwell	Cycle	Ovlp.	Track	Dwell	Cycle	Trail Grn
Default Data				Default Data				Default Data				

System/Detectors Data

Local Critical Alarms

Revert to Backup: 15

1st Phone:

2nd Phone:

Local Free: No Cycle Failure: No Coord Failure: No Conflict Flash: No Remote Flash: No

Local Fash: No Cycle Fault: No Coord Fault: No Premption: No Voltage Monitor: No

Special Status 1: No Special Status 2: No Special Status 3: No Special Status 4: No Special Status 5: No Special Status 6: No

Traffic Responsive

System Detector	Detector Channel	Name	Veh/ Hr	Average Time(mins)	Occupancy Correction/10	Min Volume %
1	65	gton SB at Ma	10	5	10	5
2	66	ng WB at Well	10	5	10	5
3	67	gton NB at Ma	10	5	10	5
4	68	ng EB at Welli	10	5	10	5

Queue 1 Detectors | System Detectors | Weight Factor

Default Data

Queue 2 Detectors | System Detectors | Weight Factor

Default Data

Sample Interval: 15

Queue: 1

Input Selection: 0=Average

Detector Failed Level : 0

Queue: 2

Input Selection: 0=Average

Detector Failed Level : 0

Queue:

Level | Enter | Leave | Dial / Split / Offset

/ /

Default Data

Vehical Detector

Diagnostic Value 0

Detector	Max Presence	No Activity	Erratic Count
4	60	120	0
8	60	120	0

Vehical Detector

Diagnostic Value 1

Detector	Max Presence	No Activity	Erratic Count
4	60	0	0
8	60	0	0

Special Detector

Diagnostic Value 0

Detector	Max Presence	No Activity	Erratic Count
1	60	60	255
2	60	60	255
3	60	60	255
4	60	60	255

Pedestrian Detector

Diagnostic Value 0

Detector	Max Presence	No Activity	Erratic Count
2	60	0	0
4	60	0	0
6	60	0	0
8	60	0	0

Pedestrian Detector

Diagnostic Value 1

Detector	Max Presence	No Activity	Erratic Count

Default Data - No Diag 1 Values

Special Detector

Diagnostic Value 1

Detector	Max Presence	No Activity	Erratic Count
1	60	0	255
2	60	0	255
3	60	0	255
4	60	0	255

Speed Trap Data

Speed Trap:

Measurement:

Detector 1 Detector_2 Distance :

Dial/Split/Offset

//

Speed Trap Low Treshold

Speed Trap High Treshold

Default Data

Default Data

Volume Detector Data

Report Interval 15

Volume Detector Number	Controller Detector Channel
1	65
2	66
3	67
4	68

SEPAC ECOM All Data

8/16/2019
8:23:17AM

Intersection Name: **Dingman Dr @ Wellington Rd** Intersection Alias: **580**

Access Data

1 :**9600 Baud**
3 :**9600 Baud**

Access Code: **9999** Channel: 26 Address: **7**

Revision: **3.32m** IP Address:

Phase Initialization Data

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Initial	0-None	4-Grn	0-None	1-Inact	0-None	0-None	0-None	0-None	0-None	0-None	0-None	0-None	0-None	0-None	0-None	0-None

PHASE DATA

	Vehical Basic Timings						Misc Timings						Pedestrian Timings						
Phase	Min Green	Passage	Max1	Max2	Yellow	All Red	Green Delay	Yellow Delay	Walk Offset Time	Walk Offset Mode	Bike Green	Bike Psg	Walk	Ped Clr	Alt Walk	Alt Ped Clr	Flash Walk	Ext Ped Clr	Actuated Rest in Walk
1	0	0.0	0	0	3.0	0.0	0.0	0.0	0	0-Advance	0.0	0.0	0	0	0	0	No	0	No
2	7	3.0	33	27	3.8	2.4	0.0	0.0	0	0-Advance	0.0	0.0	7	16	0	0	No	0	No
3	0	0.0	0	0	3.0	0.0	0.0	0.0	0	0-Advance	0.0	0.0	0	0	0	0	No	0	No
4	7	3.0	23	39	3.7	2.4	0.0	0.0	0	0-Advance	0.0	0.0	7	20	0	0	No	0	No
5	0	0.0	0	0	3.0	0.0	0.0	0.0	0	0-Advance	0.0	0.0	0	0	0	0	No	0	No
6	0	0.0	0	0	3.0	0.0	0.0	0.0	0	0-Advance	0.0	0.0	0	0	0	0	No	0	No
7	0	0.0	0	0	3.0	0.0	0.0	0.0	0	0-Advance	0.0	0.0	0	0	0	0	No	0	No
8	0	0.0	0	0	3.0	0.0	0.0	0.0	0	0-Advance	0.0	0.0	0	0	0	0	No	0	No
9	0	0.0	0	0	3.0	0.0	0.0	0.0	0	0-Advance	0.0	0.0	0	0	0	0	No	0	No
10	0	0.0	0	0	3.0	0.0	0.0	0.0	0	0-Advance	0.0	0.0	0	0	0	0	No	0	No
11	0	0.0	0	0	3.0	0.0	0.0	0.0	0	0-Advance	0.0	0.0	0	0	0	0	No	0	No
12	0	0.0	0	0	3.0	0.0	0.0	0.0	0	0-Advance	0.0	0.0	0	0	0	0	No	0	No
13	0	0.0	0	0	3.0	0.0	0.0	0.0	0	0-Advance	0.0	0.0	0	0	0	0	No	0	No
14	0	0.0	0	0	3.0	0.0	0.0	0.0	0	0-Advance	0.0	0.0	0	0	0	0	No	0	No
15	0	0.0	0	0	3.0	0.0	0.0	0.0	0	0-Advance	0.0	0.0	0	0	0	0	No	0	No
16	0	0.0	0	0	3.0	0.0	0.0	0.0	0	0-Advance	0.0	0.0	0	0	0	0	No	0	No

	Vehicle Density Timings						General Control				Miscellaneous					Special Sequence		
Ph.	Added Initial	Max Initial	Time B4 Redu	Car B4 Redu	Time To Redu	Min Gap	Non-Act Response	Veh Recall	Ped Recall	Recall Delay	Non Lock	Dual Entry	Last Car Pass	Condit Service	No Simu Gap Out	Omit	Minus Yel	Omit Call
1	0.0	0	0	0	0	0.0	None	None	None	0	Yes	No	No	No	No	2	0	0
2	0.0	0	0	0	0	0.0	NonActI	Max	Non Act+	0	Yes	Yes	No	No	No	0	0	0
3	0.0	0	0	0	0	0.0	None	None	None	0	Yes	No	No	No	No	4	0	0
4	0.0	0	0	0	0	0.0	NonActII	None	None	0	Yes	Yes	No	No	No	0	0	0
5	0.0	0	0	0	0	0.0	None	None	None	0	Yes	No	No	No	No	6	0	0
6	0.0	0	0	0	0	0.0	None	None	None	0	Yes	Yes	No	No	No	0	0	0
7	0.0	0	0	0	0	0.0	None	None	None	0	Yes	No	No	No	No	8	0	0
8	0.0	0	0	0	0	0.0	None	None	None	0	Yes	Yes	No	No	No	0	0	0
9	0.0	0	0	0	0	0.0	None	None	None	0	No	No	No	No	No	0	0	0
10	0.0	0	0	0	0	0.0	None	None	None	0	No	No	No	No	No	0	0	0
11	0.0	0	0	0	0	0.0	None	None	None	0	No	No	No	No	No	0	0	0
12	0.0	0	0	0	0	0.0	None	None	None	0	No	No	No	No	No	0	0	0
13	0.0	0	0	0	0	0.0	None	None	None	0	No	No	No	No	No	0	0	0
14	0.0	0	0	0	0	0.0	None	None	None	0	No	No	No	No	No	0	0	0

15	0.0	0	0	0	0	0.0	None	None	None	0	No	No	No	No	No	0	0	0
16	0.0	0	0	0	0	0.0	None	None	None	0	No	No	No	No	No	0	0	0

Vehical Detector Phase Assignment

Assign Phase	Mode	Switch Phase	Extend	Delay
Default Data				

Pedestrian Detector

Assign Phase	Mode	Switch Phase	Extend	Delay
Default Data				

Special Detector Phase Assignment

Assign Phase	Mode	Switch Phase	Extend	Delay
: **Default Data**				

Unit Data

General Control

Startup Time:	7 sec
Startup State:	All Red
Red Revert:	4.0 sec
Auto Ped Clr:	No
Stop T Reset:	No
Alt Sequence:	0
Special Seq:	

Ring	Input Respons	Output Selection
1	Ring 1	Ring 1
2	Ring 2	Ring 2
3	None	None
4	None	None

I/O Modes:

ABC Input(Entry) Modes: 0 **D Input(Entry) Modes:** 0

ABC Output(O/STS) Modes: 0 **D Output(O/STS) Modes:** 0

Remote Flash

Test A = Flash

Phase	Entry	Exit

Default Data
- No Flash

Default Data
- No Flash

Overlaps

Overlaps

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Phase(s)																

Start Green

Overlaps

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Phase(s)																

Ring

Phase	Ring	Next Phase
2	1	3
4	1	1

Phase(s)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Concurrent Phases	1	2	3	4	1	1	3	3	9	10	11	12	13	14	15	16
	5	5	7	7	2	2	4	4								
	6	6	8	8	5	6	7	8								

Alternate Sequences

No Alternate Sequences Programmed

Port 1 Data

BIU Addr	Port Status	Basic Det	Message 40

Default Data

Signal Driver Ouput

Channel	Control	Hardware Pins
1	1 - Veh Phase 1	1 - Phase 1 RYG
2	2 - Veh Phase 2	2 - Phase 2 RYG
3	3 - Veh Phase 3	3 - Phase 3 RYG
4	4 - Veh Phase 4	4 - Phase 4 RYG
5	5 - Veh Phase 5	5 - Phase 5 RYG
6	6 - Veh Phase 6	6 - Phase 6 RYG
7	7 - Veh Phase 7	7 - Phase 7 RYG
8	8 - Veh Phase 8	8 - Phase 8 RYG
9	18 - Ped Phase 2	10 - Phase 2 DPW
10	20 - Ped Phase 4	12 - Phase 4 DPW
11	22 - Ped Phase 6	14 - Phase 6 DPW
12	24 - Ped Phase 8	16 - Phase 8 DPW
13	33 - Overlap A	17 - Overlap A RYG
14	34 - Overlap B	18 - Overlap B RYG
15	35 - Overlap C	19 - Overlap C RYG
16	36 - Overlap D	20 - Overlap D RYG
17	17 - Ped Phase 1	9 - Phase 1 DPW
18	19 - Ped Phase 3	11 - Phase 3 DPW
19	21 - Ped Phase 5	13 - Phase 5 DPW
20	23 - Ped Phase 7	15 - Phase 7 DPW

Coordination Data

General Coordination Data

Operation Mode: 1=Auto
Coordination Mode: 1=Yield
Maximun Mode: 0=Inhibit
Correction Mode: 2=Short Way
Offset Mode: 0=Beg Grn
Force Mode: 1=Cycle
Max Dwell Time: 0
Yield Period: 0
Manual Dial: 1
Manual Split: 1
Manual Offset: 1

Dial/Split	Cycle
1/1	100
1/2	100
1/3	100
4/1	110
4/2	120

Split Times and Phase Modes

Dial 1 / **Split** 1

Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
2	55	1=Coordinate	4	45	0=Actuated						

Dial 1 / **Split** 2

Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
2	61	1=Coordinate	4	39	0=Actuated						

Dial 1 / **Split** 3

Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
2	58	1=Coordinate	4	42	0=Actuated						

Dial 4 / **Split** 1

Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
2	80	1=Coordinate	4	30	0=Actuated						

Dial 4 / **Split** 2

Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode	Ph.	Splits	Ph. Mode
2	90	1=Coordinate	4	30	0=Actuated						

Traffic Plan Data

Plan: 1/1/1	Offset Time: 2	Alternat Sequence: 0	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
	Mode: 0=Normal	Special Function: 0	Correction Mode: 0=No		
Plan: 1/2/1	Offset Time: 57	Alternat Sequence: 0	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
	Mode: 0=Normal	Special Function: 0	Correction Mode: 0=No		
Plan: 1/3/1	Offset Time: 21	Alternat Sequence: 0	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
	Mode: 0=Normal	Special Function: 0	Correction Mode: 0=No		
Plan: 4/1/1	Offset Time: 56	Alternat Sequence: 0	Rg 2 Lag Time: 0	Rg 3 Lag Time: 0	Rg 4 Lag Time: 0
	Mode: 0=Normal	Special Function: 0	Correction Mode: 0=No		

Local TBC Data

Start of Daylight Saving Month: 3 Week: 2 Cycle Zero Reference Hours: 24 Min: 0

End of Daylight Saving Month: 11 Week: 1

Source Day	Equate Days 1	2	3	4	5	6	7
1	51	0	0	0	0	0	0
2	3	4	5	6	0	0	0

Traffic Data

Event	Day	Time	D/S/O	flash	PHASE FUNCTION 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	1	0:1	0/0/4																	
2	1	8:0	0/0/0			X		X												
3	1	22:0	0/0/4																	
4	2	0:1	0/0/4																	
5	2	7:0	1/1/1																	
6	2	9:30	0/0/0			X		X												
7	2	15:30	1/3/1																	
8	2	18:30	0/0/0			X		X												
9	2	22:0	0/0/4																	
10	7	0:1	0/0/4																	
11	7	7:0	0/0/0			X		X												
12	7	22:0	0/0/4																	

AUX. Events

Event	Program Day	Hour	Min.	Aux Ouputs 1	2	3	Det. Diag. D1	Det. Rpt. D2	Det. Mult100 D3	Dimming	Special Function Outputs 1	2	3	4	5	6	7	8

Event	Month	Day	Year	Special Day	Special Week
1	2	16	15	51	0
2	4	3	15	51	0
3	5	18	15	51	0
4	8	3	15	51	0
5	9	7	15	51	0
6	10	12	15	51	0
7	2	15	16	51	0
8	3	25	16	51	0
9	5	23	16	51	0
10	8	1	16	51	0
11	9	5	16	51	0
12	10	10	16	51	0
13	2	20	17	51	0
14	4	14	17	51	0
15	5	22	17	51	0
16	8	7	17	51	0
17	9	4	17	51	0
18	10	9	17	51	0
19	2	19	18	51	0
20	3	30	18	51	0
21	5	21	18	51	0
22	8	6	18	51	0
23	9	3	18	51	0
24	10	8	18	51	0
25	2	18	19	51	0
26	4	19	19	51	0
27	5	20	19	51	0
28	8	5	19	51	0
29	9	2	19	51	0
30	10	14	19	51	0
31	2	17	20	51	0
32	4	10	20	51	0
33	5	18	20	51	0
34	8	3	20	51	0
35	9	7	20	51	0
36	10	12	20	51	0
37	2	15	21	51	0
38	4	2	21	51	0
39	5	24	21	51	0
40	8	2	21	51	0
41	9	6	21	51	0
42	10	11	21	51	0
43	2	21	22	51	0
44	4	15	22	51	0
45	5	23	22	51	0
46	8	1	22	51	0
47	9	5	22	51	0
48	10	10	22	51	0
49	2	20	23	51	0
50	4	7	23	51	0
51	5	23	23	51	0
52	8	7	23	51	0
53	9	4	23	51	0
54	10	9	23	51	0
55	1	1	100	1	0
56	7	1	100	1	0
57	12	25	100	1	0
58	12	26	100	1	0

Special Functions

Function	SF1	SF2	SF3	SF4	SF5	SF6	SF7	SF8	SF9	SF10	SF11	SF12	SF13	SF14	SF15	SF16
Special Function 1	X															
Special Function 2		X														
Special Function 3			X													
Special Function 4				X												
Special Function 5					X											
Special Function 6						X										
Special Function 7							X									
Special Function 8								X								

Phase Function

	PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16
Phase 1 Max2	X															
Phase 2 Max2		X														
Phase 3 Max2			X													
Phase 4 Max2				X												
Phase 5 Max2					X											
Phase 6 Max2						X										
Phase 7 Max2							X									
Phase 8 Max2								X								

Phase Omit

	PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16
Phase 1 Phase Omit									X							
Phase 2 Phase Omit										X						
Phase 3 Phase Omit											X					
Phase 4 Phase Omit												X				
Phase 5 Phase Omit													X			
Phase 6 Phase Omit														X		
Phase 7 Phase Omit															X	
Phase 8 Phase Omit																X

Ped Omit

PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16

Veh Det Coord ReSvc

PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16

Function Phase Recall

PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16

Phase Min Recall

PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16

Veh Det Ped Recall

PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Veh Det Bike Recall

PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Vehicle Function

Veh Det Switch Omit

PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Veh Det Switch Now

PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Veh Det Switch Also

PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Overlap Function

PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Dimming Data

Default Data - No Dimming Programmed

Lane Defination

Lanes	Name	Green Inbound	Yellow Inbound	Red Inbound	Green Outbound	Yellow Outbound

Default Data - Lane Defination

program_day program_hour program_minute LanePhFun

Preemption Data

General Preemption Data

Preempt > Flash	Preempt 2 > Preempt 3	Preempt 4 > Preempt 5
Preempt 1 > Preempt 2	Preempt 3 > Preempt 4	Preempt 5 > Preempt 6

Preempt Timers

Preempt	NLock	Link to Pmpt	Del	Ext	Dur	Max Call	Lock-Out	De Bounce	Gate Ext	Min G | W	Select Ped Clear	Select Yel	Select Red	Track Grn	Track Ped	Track Yel	Track Red	Dwell Green	Return Ped Clear	Return Yel	Return Red	Sel Ret Mode
1	Y	0	0	0	0	0	0	0.0	0	0	0	20	3.8	2.4	0	0	3.0	0.0	20	0	3.7	2.4	F Aut
2	N	0	0	0	0	0	0	0.0	0	0	0	20	3.8	2.4	0	0	3.0	0.0	20	0	3.8	2.4	F Aut
3	N	0	0	0	0	0	0	0.0	0	0	0	8	4.0	2.0	10	8	4.0	2.0	10	8	4.0	2.0	F Aut
4	N	0	0	0	0	0	0	0.0	0	0	0	8	4.0	2.0	10	8	4.0	2.0	10	8	4.0	2.0	F Aut
5	N	0	0	0	0	0	0	0.0	0	0	0	8	4.0	2.0	10	8	4.0	2.0	10	8	4.0	2.0	F Aut
6	N	0	0	0	0	0	0	0.0	0	0	0	8	4.0	2.0	10	8	4.0	2.0	10	8	4.0	2.0	F Aut

Preempt 1			Preempt 2			Preempt 3			Preempt 4			Preempt 5			Preempt 6		
Phase	Exit Phase	Exit Calls	Phase	Exit Phase	Exit Calls	Phase	Exit Phase	Exit Calls	Phase	Exit Phase	Exit Calls	Phase	Exit Phase	Exit Calls	Phase	Exit Phase	Exit Calls
4	Yes	No	2	Yes	No												

Priority Timers

Priority	Non-Locking	Delay	Extend	Free Dial	Free Split	Min Green	No Lock out	Lock out A	Lock out B	Max Green	Pre-Green	Recall	Excl-co Phase Svc.	Transit Overlap	
														Signal Type	Blankout

Priority Detector Channels

Priority

Detector

Priority Fixed Phases

Priority

Legend: 0 FALSE 1 TRUE
CO-PHASE
QJ-PHASE

Priority

Priority Bank : Level

Partial Priority	Full Priority	Recovery
Alt Seq	Freq. Override	Method
Alt Seq Enabled	Ped skip	Return
Min Walk	Force full Priority	PedWait
	Frequency	PedOverride
	Freq. Level	

Codes: 0 FALSE X TRUE

Priority :

Priority Bank :

Queue	Phase	Detector	Time

Default data

Priority :

Priority Bank :

Queue	Phase	Detector	Time

Default data

Priority :

Priority Bank :

Queue	Phase	Detector	Time

Default data

Priority :	Priority :	Priority :
Priority Bank :	Priority Bank :	Priority Bank :
Queue Phase Detector Time	Queue Phase Detector Time	Queue Phase Detector Time
Default data	Default data	Default data

Priority : Bank Detector PE 1A 2A 3A 4A 5A 6A B Default Data	Priority : Bank Detector PE 1A 2A 3A 4A 5A 6A B Default Data
Priority : Bank Detector PE 1A 2A 3A 4A 5A 6A B Default Data	Priority : Bank Detector PE 1A 2A 3A 4A 5A 6A B Default Data
Priority : Bank Detector PE 1A 2A 3A 4A 5A 6A B Default Data	Priority : Bank Detector PE 1A 2A 3A 4A 5A 6A B Default Data

Preempt 1

Vehical Phases				Pedestrian Phases				Overlaps				
Ph.	Track	Dwell	Cycle	Ph	Track	Dwell	Cycle	Ovlp	Track	Dwell	Cycle	Trail Grn
2	Red	Green	No									
				Default Data				Default Data				

Preempt 2

Vehical Phases				Pedestrian Phases				Overlaps				
Ph.	Track	Dwell	Cycle	Ph.	Track	Dwell	Cycle	Ovlp.	Track	Dwell	Cycle	Trail Grn
4	Red	Green	No									
				Default Data				Default Data				

Preempt 3

Vehical Phases				Pedestrian Phases				Overlaps				
Ph.	Track	Dwell	Cycle	Ph.	Track	Dwell	Cycle	Ovlp.	Track	Dwell	Cycle	Trail Grn
Default Data				Default Data				Default Data				

Preempt 4

Vehical Phases				Pedestrian Phases				Overlaps				
Ph.	Track	Dwell	Cycle	Ph.	Track	Dwell	Cycle	Ovlp.	Track	Dwell	Cycle	Trail Grn
Default Data				Default Data				Default Data				

Preempt 5

Vehical Phases				Pedestrian Phases				Overlaps				
Ph.	Track	Dwell	Cycle	Ph.	Track	Dwell	Cycle	Ovlp.	Track	Dwell	Cycle	Trail Grn
Default Data				Default Data				Default Data				

Preempt 6

Vehical Phases				Pedestrian Phases				Overlaps				
Ph.	Track	Dwell	Cycle	Ph.	Track	Dwell	Cycle	Ovlp.	Track	Dwell	Cycle	Trail Grn

Default Data

Default Data

Default Data

System/Detectors Data

Local Critical Alarms

Revert to Backup: 15

1st Phone:

2nd Phone:

Local Free: No Cycle Failure: No Coord Failure: No Conflict Flash: No Remote Flash: No

Local Fash: No Cycle Fault: No Coord Fault: No Premption: No Voltage Monitor: No

Special Status 1: No Special Status 2: No Special Status 3: No Special Status 4: No Special Status 5: No Special Status 6: No

Traffic Responsive

System Detector	Detector Channel	Name	Veh/ Hr	Average Time(mins)	Occupancy Correction/10	Min Volume %	Queue 1 Detectors	System Detectors	Weight Factor	Queue 2 Detectors	System Detectors	Weight Factor

Default Data

Sample Interval: 0

Default Data

Queue: 1

Input Selection: 0=Average

Detector Failed Level : 0

Queue: 2

Input Selection: 0=Average

Detector Failed Level : 0

Default Data

Queue:

Level	Enter	Leave	Dial / Split / Offset
			/ /

Default Data

Vehical Detector

Diagnostic Value 0

Detector	Max Presence	No Activity	Erratic Count
2	60	0	0
4	60	0	0

Vehical Detector

Diagnostic Value 1

Detector	Max Presence	No Activity	Erratic Count

Default Data - No Diag 1 Values

Special Detector

Diagnostic Value 0

Detector	Max Presence	No Activity	Erratic Count

Default Data - No Diag 0 Valu

Pedestrian Detector

Diagnostic Value 0

Detector	Max Presence	No Activity	Erratic Count
2	60	0	0
4	60	0	0

Pedestrian Detector

Diagnostic Value 1

Detector	Max Presence	No Activity	Erratic Count

Default Data - No Diag 1 Values

Special Detector

Diagnostic Value 1

Detector	Max Presence	No Activity	Erratic Count

Default Data - No Diag 1 Values

Speed Trap Data

Speed Trap:

Measurement:

Detector 1 Detector_2 Distance :

Dial/Split/Offset

//

Default Data

Speed Trap Low Treshold	Speed Trap High Treshold

Default Data

Volume Detector Data

Report Interval 0

Volume Detector Number	Controller Detector Channel

Default Data

Appendix C

Level of Service (LOS) Definitions

LEVEL OF SERVICE[1]

Level of Service (LOS) is defined as a qualitative measure describing operational conditions within a traffic stream, and their perception by motorists and/or passengers. This concept was introduced in the 1965 *Highway Capacity Manual* as a criteria for interrupted flow conditions. The 2000 *Highway Capacity Manual* changed the basis for measuring Level of Service at intersections to control delay[2].

Six Levels of Service are defined with LOS A representing the best operating conditions, and LOS F the worst (briefly described below). It should be noted that there is often significant variability in the amount of delay experienced by individual drivers.

LOS A: This Level of Service describes the highest quality of traffic flow and is referred to as free flow. The approach appears open, turning movements are easily made and drivers have freedom of operation. Control delay is less than 10 seconds/vehicle.

LOS B: This Level of Service is referred to as a stable flow. Drivers feel somewhat restricted and occasionally may have to wait to complete the minor movement. Control delay is 10-15 seconds/vehicle for unsignalized intersections and 10-20 seconds/vehicle for signalized intersections.

LOS C: At this level, the operation is stable. Drivers feel more restricted and may have to wait, with queues developing for short periods. Control delay is 15-25 seconds/vehicle at unsignalized intersections and 20-35 seconds/vehicle at signalized intersections.

LOS D: At this level, traffic is approaching unstable flow. The motorist experiences increasing restriction and instability of flow. There are substantial delays to approaching vehicles during short peaks within the peak period, but there are enough gaps to lower demand to permit occasional clearance of developing queues and prevent excessive back-ups. Control delay is 25-35 seconds/vehicle at unsignalized intersections and 35-55 seconds/vehicle at signalized intersections.

LOS E: At this level capacity occurs. Long queues of vehicles exist and delays to vehicles may extend. Control delay is 35-50 seconds/vehicle at unsignalized intersections and 55-80 seconds/vehicle at signalized intersections.

LOS F: At this Level of Service, the intersection has failed. Capacity of the intersection has been exceeded. Control delay exceeds 50 seconds/vehicle at unsignalized intersections and exceeds 80 seconds/vehicle at signalized intersections.

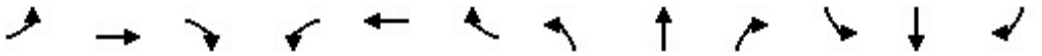
---

[1] *Transportation Research Board: Highway Capacity Manual 1965, 2000*

[2] *Control delay is defined as the component of delay that results when a control signal causes a lane group to reduce speed or to stop; it is measured by comparison with the uncontrolled condition.*

Appendix D

Synchro Analysis Worksheets



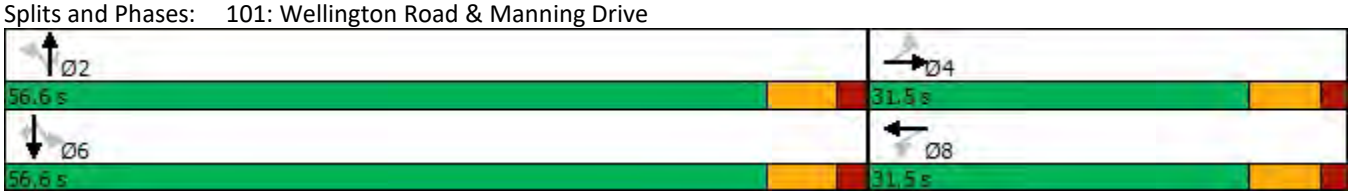
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	5	2	1	10	8	2	759	1	2	262	16
Future Volume (vph)	14	5	2	1	10	8	2	759	1	2	262	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.3	3.7	3.6	3.3	3.0	3.6	3.6	3.5	3.8	3.6	3.5	3.9
Storage Length (m)	30.0		0.0	25.0		0.0	0.0		55.0	0.0		80.0
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.957			0.932				0.850			0.850
Flt Protected	0.950			0.950								
Satd. Flow (prot)	1020	1287	0	1745	1239	0	0	1842	825	0	1761	987
Flt Permitted								0.999			0.996	
Satd. Flow (perm)	1074	1287	0	1837	1239	0	0	1840	825	0	1754	987
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			9				43			43
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		1191.6			497.1			586.1			1352.9	
Travel Time (s)		53.6			22.4			26.4			60.9	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	71%	60%	0%	0%	50%	13%	0%	2%	100%	100%	6%	69%
Adj. Flow (vph)	15	5	2	1	11	9	2	807	1	2	279	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	15	7	0	1	20	0	0	809	1	0	281	17
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		8	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	26.5	26.5		26.5	26.5		24.6	24.6	24.6	24.6	24.6	24.6
Total Split (s)	31.5	31.5		31.5	31.5		56.6	56.6	56.6	56.6	56.6	56.6
Total Split (%)	35.8%	35.8%		35.8%	35.8%		64.2%	64.2%	64.2%	64.2%	64.2%	64.2%
Maximum Green (s)	25.0	25.0		25.0	25.0		50.0	50.0	50.0	50.0	50.0	50.0
Yellow Time (s)	4.6	4.6		4.6	4.6		4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	1.9	1.9		1.9	1.9		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Lost Time (s)	6.5	6.5		6.5	6.5			6.6	6.6		6.6	6.6
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		Ped	Ped	Ped	Ped	Ped	Ped
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	13.0	13.0		13.0	13.0		10.0	10.0	10.0	10.0	10.0	10.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	0
Act Effct Green (s)	8.1	8.1		8.1	8.1			43.0	43.0		43.0	43.0
Actuated g/C Ratio	0.16	0.16		0.16	0.16			0.87	0.87		0.87	0.87
v/c Ratio	0.09	0.03		0.00	0.10			0.51	0.00		0.18	0.02
Control Delay	24.6	21.6		24.0	19.5			5.4	0.0		3.1	0.6

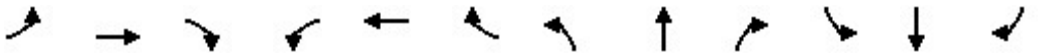
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	24.6	21.6		24.0	19.5			5.4	0.0		3.1	0.6
LOS	C	C		C	B			A	A		A	A
Approach Delay		23.7			19.7			5.4			2.9	
Approach LOS		C			B			A			A	
Queue Length 50th (m)	0.9	0.3		0.1	0.6			0.0	0.0		0.0	0.0
Queue Length 95th (m)	6.7	3.9		1.4	6.9			89.3	0.0		21.7	0.7
Internal Link Dist (m)		1167.6			473.1			562.1			1328.9	
Turn Bay Length (m)	30.0			25.0					55.0			80.0
Base Capacity (vph)	579	695		991	672			1660	748		1582	895
Starvation Cap Reductn	0	0		0	0			0	0		0	0
Spillback Cap Reductn	0	0		0	0			0	0		0	0
Storage Cap Reductn	0	0		0	0			0	0		0	0
Reduced v/c Ratio	0.03	0.01		0.00	0.03			0.49	0.00		0.18	0.02

Intersection Summary

Area Type: Other
Cycle Length: 88.1
Actuated Cycle Length: 49.6
Natural Cycle: 65
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.51
Intersection Signal Delay: 5.3 Intersection LOS: A
Intersection Capacity Utilization 68.1% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 101: Wellington Road & Manning Drive



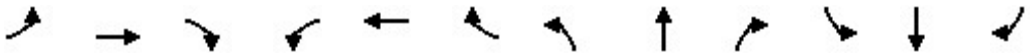


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	79	37	56	7	17	31	44	784	2	15	401	60
Future Volume (vph)	79	37	56	7	17	31	44	784	2	15	401	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.3	3.3	3.6	3.3	3.3	3.1	3.4	3.6	3.1	3.4	3.6
Storage Length (m)	0.0		5.0	0.0		5.0	55.0		0.0	30.0		0.0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850			0.850					0.980	
Flt Protected		0.967			0.986		0.950			0.950		
Satd. Flow (prot)	0	1691	1432	0	1741	1419	1536	3296	0	1705	3047	0
Flt Permitted		0.779			0.901		0.455			0.300		
Satd. Flow (perm)	0	1362	1432	0	1591	1419	736	3296	0	538	3047	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			46			36					23	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		229.7			342.8			1359.8			453.2	
Travel Time (s)		13.8			20.6			81.6			27.2	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	6%	3%	9%	14%	0%	10%	11%	7%	50%	0%	13%	17%
Adj. Flow (vph)	91	43	64	8	20	36	51	901	2	17	461	69
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	134	64	0	28	36	51	903	0	17	530	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	4	4	4	8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	33.1	33.1	33.1	33.1	33.1	33.1	29.2	29.2		29.2	29.2	
Total Split (s)	45.0	45.0	45.0	45.0	45.0	45.0	55.0	55.0		55.0	55.0	
Total Split (%)	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	55.0%	55.0%		55.0%	55.0%	
Maximum Green (s)	38.9	38.9	38.9	38.9	38.9	38.9	48.8	48.8		48.8	48.8	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.8	3.8		3.8	3.8	
All-Red Time (s)	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4		2.4	2.4	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.1	6.1		6.1	6.1	6.2	6.2		6.2	6.2	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None	None	C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	20.0	20.0	20.0	20.0	20.0	20.0	16.0	16.0		16.0	16.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0		0	0	
Act Effct Green (s)		15.1	15.1		15.1	15.1	72.6	72.6		72.6	72.6	
Actuated g/C Ratio		0.15	0.15		0.15	0.15	0.73	0.73		0.73	0.73	
v/c Ratio		0.65	0.25		0.12	0.15	0.10	0.38		0.04	0.24	
Control Delay		53.8	17.2		35.1	12.4	5.7	6.3		5.5	5.2	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		53.8	17.2		35.1	12.4	5.7	6.3		5.5	5.2	
LOS		D	B		D	B	A	A		A	A	
Approach Delay		42.0			22.3			6.2			5.2	
Approach LOS		D			C			A			A	
Queue Length 50th (m)		26.1	3.2		5.0	0.0	2.6	31.2		0.8	15.2	
Queue Length 95th (m)		41.3	13.3		11.8	7.8	7.6	50.1		3.4	26.4	
Internal Link Dist (m)		205.7			318.8			1335.8			429.2	
Turn Bay Length (m)			5.0			5.0	55.0			30.0		
Base Capacity (vph)		529	585		618	573	534	2391		390	2217	
Starvation Cap Reductn		0	0		0	0	0	0		0	0	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.25	0.11		0.05	0.06	0.10	0.38		0.04	0.24	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 2 (2%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.65			
Intersection Signal Delay: 10.5		Intersection LOS: B	
Intersection Capacity Utilization 56.0%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 104: Wellington Road & Dingman Drive



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	0	3	3	3	18	4	775	2	4	271	1
Future Volume (Veh/h)	4	0	3	3	3	18	4	775	2	4	271	1
Sign Control		Stop			Stop			Free			Free	
Grade		1%			1%			1%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	4	0	3	3	3	20	4	852	2	4	298	1
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1189	1168	298	1170	1168	853	299			854		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1189	1168	298	1170	1168	853	299			854		
tC, single (s)	7.9	6.5	6.9	7.1	6.5	6.3	4.6			4.6		
tC, 2 stage (s)												
tF (s)	4.2	4.0	3.9	3.5	4.0	3.4	2.7			2.7		
p0 queue free %	96	100	100	98	98	94	100			99		
cM capacity (veh/h)	110	193	611	169	193	346	1033			615		

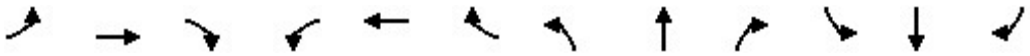
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	7	26	858	303
Volume Left	4	3	4	4
Volume Right	3	20	2	1
cSH	169	285	1033	615
Volume to Capacity	0.04	0.09	0.00	0.01
Queue Length 95th (m)	1.0	2.4	0.1	0.2
Control Delay (s)	27.2	18.9	0.1	0.2
Lane LOS	D	C	A	A
Approach Delay (s)	27.2	18.9	0.1	0.2
Approach LOS	D	C		

Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	53.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	7	35	2	8	27	11	792	8	17	444	3
Future Volume (Veh/h)	11	7	35	2	8	27	11	792	8	17	444	3
Sign Control		Stop			Stop			Free			Free	
Grade		0%			-1%			-1%			1%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	13	8	42	2	10	32	13	943	10	20	529	4
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1104	1548	529	1589	1547	476	533			953		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1104	1548	529	1589	1547	476	533			953		
tC, single (s)	8.0	6.5	7.1	8.5	6.5	7.0	4.3			4.2		
tC, 2 stage (s)												
tF (s)	3.8	4.0	3.4	4.0	4.0	3.3	2.3			2.3		
p0 queue free %	89	93	91	95	91	94	99			97		
cM capacity (veh/h)	116	110	476	38	111	529	984			693		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	63	44	13	629	324	20	529	4
Volume Left	13	2	13	0	0	20	0	0
Volume Right	42	32	0	0	10	0	0	4
cSH	231	216	984	1700	1700	693	1700	1700
Volume to Capacity	0.27	0.20	0.01	0.37	0.19	0.03	0.31	0.00
Queue Length 95th (m)	8.6	5.9	0.3	0.0	0.0	0.7	0.0	0.0
Control Delay (s)	26.3	25.9	8.7	0.0	0.0	10.4	0.0	0.0
Lane LOS	D	D	A			B		
Approach Delay (s)	26.3	25.9	0.1			0.4		
Approach LOS	D	D						

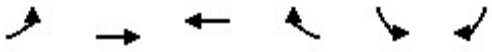
Intersection Summary				
Average Delay	1.9			
Intersection Capacity Utilization	37.0%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	0	12	2	3	10	5	6	64	3	2	23	2
Future Volume (vph)	0	12	2	3	10	5	6	64	3	2	23	2
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	13	2	3	11	5	7	70	3	2	25	2

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	15	19	80	29
Volume Left (vph)	0	3	7	2
Volume Right (vph)	2	5	3	2
Hadj (s)	0.29	0.03	0.02	0.22
Departure Headway (s)	4.4	4.2	4.0	4.3
Degree Utilization, x	0.02	0.02	0.09	0.03
Capacity (veh/h)	785	835	873	828
Control Delay (s)	7.5	7.3	7.4	7.4
Approach Delay (s)	7.5	7.3	7.4	7.4
Approach LOS	A	A	A	A

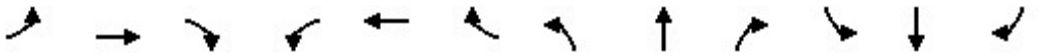
Intersection Summary			
Delay	7.4		
Level of Service	A		
Intersection Capacity Utilization	15.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	4	14	18	1	0	5
Future Volume (Veh/h)	4	14	18	1	0	5
Sign Control		Free	Free		Stop	
Grade		2%	-2%		-3%	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	5	17	22	1	0	6
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	23				50	22
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	23				50	22
tC, single (s)	4.3				6.4	7.0
tC, 2 stage (s)						
tF (s)	2.4				3.5	4.0
p0 queue free %	100				100	99
cM capacity (veh/h)	1455				962	868

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	22	23	6
Volume Left	5	0	0
Volume Right	0	1	6
cSH	1455	1700	868
Volume to Capacity	0.00	0.01	0.01
Queue Length 95th (m)	0.1	0.0	0.2
Control Delay (s)	1.7	0.0	9.2
Lane LOS	A		A
Approach Delay (s)	1.7	0.0	9.2
Approach LOS			A

Intersection Summary			
Average Delay		1.8	
Intersection Capacity Utilization		14.2%	ICU Level of Service
Analysis Period (min)		15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	167	9	0	1	0	19	5	318	3	15	251	5
Future Volume (Veh/h)	167	9	0	1	0	19	5	318	3	15	251	5
Sign Control		Stop			Stop			Free			Free	
Grade		-2%			-2%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	192	10	0	1	0	22	6	366	3	17	289	6
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	723	704	289	706	701	366	289			369		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	723	704	289	706	701	366	289			369		
tC, single (s)	7.1	7.2	6.2	7.1	6.5	6.7	4.5			4.4		
tC, 2 stage (s)												
tF (s)	3.5	4.6	3.3	3.5	4.0	3.7	2.6			2.5		
p0 queue free %	41	97	100	100	100	96	99			98		
cM capacity (veh/h)	324	286	755	338	358	590	1084			1038		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	202	23	6	366	3	17	289	6
Volume Left	192	1	6	0	0	17	0	0
Volume Right	0	22	0	0	3	0	0	6
cSH	321	571	1084	1700	1700	1038	1700	1700
Volume to Capacity	0.63	0.04	0.01	0.22	0.00	0.02	0.17	0.00
Queue Length 95th (m)	32.0	1.0	0.1	0.0	0.0	0.4	0.0	0.0
Control Delay (s)	33.4	11.6	8.3	0.0	0.0	8.5	0.0	0.0
Lane LOS	D	B	A			A		
Approach Delay (s)	33.4	11.6	0.1			0.5		
Approach LOS	D	B						

Intersection Summary				
Average Delay	7.9			
Intersection Capacity Utilization	39.8%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	8	8	500	8	71	263
Future Volume (Veh/h)	8	8	500	8	71	263
Sign Control	Stop		Free			Free
Grade	-1%		0%			0%
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	9	9	575	9	82	302
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1041	575			575	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1041	575			575	
tC, single (s)	6.4	6.2			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.3	
p0 queue free %	96	98			92	
cM capacity (veh/h)	235	521			974	

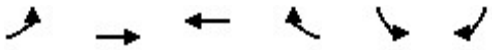
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	18	575	9	82	302
Volume Left	9	0	0	82	0
Volume Right	9	0	9	0	0
cSH	324	1700	1700	974	1700
Volume to Capacity	0.06	0.34	0.01	0.08	0.18
Queue Length 95th (m)	1.4	0.0	0.0	2.2	0.0
Control Delay (s)	16.7	0.0	0.0	9.0	0.0
Lane LOS	C			A	
Approach Delay (s)	16.7	0.0		1.9	
Approach LOS	C				

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	43.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	27	9	6	504	327	23
Future Volume (Veh/h)	27	9	6	504	327	23
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	30	10	7	566	367	26
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	947	367	393			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	947	367	393			
tC, single (s)	6.4	6.3	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.4	2.2			
p0 queue free %	90	98	99			
cM capacity (veh/h)	291	659	1177			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	40	7	566	367	26
Volume Left	30	7	0	0	0
Volume Right	10	0	0	0	26
cSH	338	1177	1700	1700	1700
Volume to Capacity	0.12	0.01	0.33	0.22	0.02
Queue Length 95th (m)	3.2	0.1	0.0	0.0	0.0
Control Delay (s)	17.1	8.1	0.0	0.0	0.0
Lane LOS	C	A			
Approach Delay (s)	17.1	0.1		0.0	
Approach LOS	C				

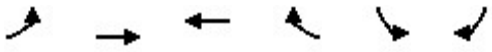
Intersection Summary				
Average Delay		0.7		
Intersection Capacity Utilization		36.5%	ICU Level of Service	A
Analysis Period (min)		15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	15	30	3	3	0
Future Volume (Veh/h)	1	15	30	3	3	0
Sign Control		Free	Free		Stop	
Grade		-1%	0%		0%	
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67
Hourly flow rate (vph)	1	22	45	4	4	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	49				71	47
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	49				71	47
tC, single (s)	4.5				7.1	6.9
tC, 2 stage (s)						
tF (s)	2.6				4.1	3.9
p0 queue free %	100				99	100
cM capacity (veh/h)	1327				794	859

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	23	49	4
Volume Left	1	0	4
Volume Right	0	4	0
cSH	1327	1700	794
Volume to Capacity	0.00	0.03	0.01
Queue Length 95th (m)	0.0	0.0	0.1
Control Delay (s)	0.3	0.0	9.6
Lane LOS	A		A
Approach Delay (s)	0.3	0.0	9.6
Approach LOS			A

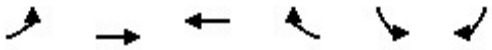
Intersection Summary			
Average Delay		0.6	
Intersection Capacity Utilization		13.3%	ICU Level of Service A
Analysis Period (min)		15	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	31	21	1	1	2
Future Volume (Veh/h)	0	31	21	1	1	2
Sign Control		Free	Free		Stop	
Grade		1%	1%		0%	
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69
Hourly flow rate (vph)	0	45	30	1	1	3
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	31				76	30
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	31				76	30
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1595				933	1050

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	45	31	4
Volume Left	0	0	1
Volume Right	0	1	3
cSH	1700	1700	1018
Volume to Capacity	0.03	0.02	0.00
Queue Length 95th (m)	0.0	0.0	0.1
Control Delay (s)	0.0	0.0	8.6
Lane LOS			A
Approach Delay (s)	0.0	0.0	8.6
Approach LOS			A

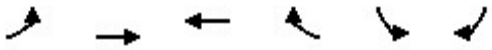
Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	18	3	8	18	15	10
Future Volume (Veh/h)	18	3	8	18	15	10
Sign Control		Free	Free		Stop	
Grade		1%	1%		0%	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	23	4	10	23	19	13
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	33				72	22
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	33				72	22
tC, single (s)	5.1				7.4	6.2
tC, 2 stage (s)						
tF (s)	3.1				4.4	3.3
p0 queue free %	98				97	99
cM capacity (veh/h)	1124				723	1062

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	27	33	32
Volume Left	23	0	19
Volume Right	0	23	13
cSH	1124	1700	830
Volume to Capacity	0.02	0.02	0.04
Queue Length 95th (m)	0.5	0.0	1.0
Control Delay (s)	7.1	0.0	9.5
Lane LOS	A		A
Approach Delay (s)	7.1	0.0	9.5
Approach LOS			A

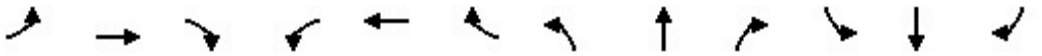
Intersection Summary			
Average Delay		5.4	
Intersection Capacity Utilization		17.8%	ICU Level of Service A
Analysis Period (min)		15	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	4	28	30	2	1	2
Future Volume (Veh/h)	4	28	30	2	1	2
Sign Control		Free	Free		Stop	
Grade		0%	-1%		0%	
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Hourly flow rate (vph)	6	43	46	3	2	3
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						3
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	49				102	48
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	49				102	48
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1571				897	1027

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	49	49	5
Volume Left	6	0	2
Volume Right	0	3	3
cSH	1571	1700	1712
Volume to Capacity	0.00	0.03	0.00
Queue Length 95th (m)	0.1	0.0	0.1
Control Delay (s)	0.9	0.0	8.7
Lane LOS	A		A
Approach Delay (s)	0.9	0.0	8.7
Approach LOS			A

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	14.8%	ICU Level of Service	A
Analysis Period (min)	15		



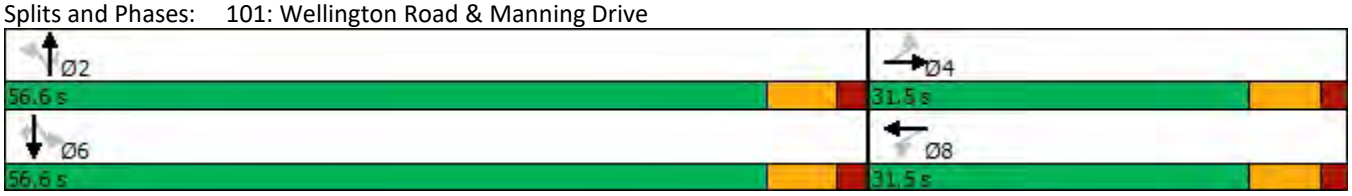
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	9	11	0	8	3	12	468	3	9	800	6
Future Volume (vph)	14	9	11	0	8	3	12	468	3	9	800	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.3	3.7	3.6	3.3	3.0	3.6	3.6	3.5	3.8	3.6	3.5	3.9
Storage Length (m)	30.0		0.0	25.0		0.0	0.0		55.0	0.0		80.0
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.917			0.959				0.850			0.850
Flt Protected	0.950							0.999			0.999	
Satd. Flow (prot)	1312	1627	0	1837	1701	0	0	1820	1651	0	1841	1255
Flt Permitted								0.979			0.995	
Satd. Flow (perm)	1381	1627	0	1837	1701	0	0	1784	1651	0	1833	1255
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			3				43			43
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		1191.6			497.1			586.1			1352.9	
Travel Time (s)		53.6			22.4			26.4			60.9	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	33%	0%	15%	0%	0%	0%	8%	3%	0%	0%	2%	33%
Adj. Flow (vph)	14	9	11	0	8	3	12	482	3	9	825	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	14	20	0	0	11	0	0	494	3	0	834	6
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		8	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	26.5	26.5		26.5	26.5		24.6	24.6	24.6	24.6	24.6	24.6
Total Split (s)	31.5	31.5		31.5	31.5		56.6	56.6	56.6	56.6	56.6	56.6
Total Split (%)	35.8%	35.8%		35.8%	35.8%		64.2%	64.2%	64.2%	64.2%	64.2%	64.2%
Maximum Green (s)	25.0	25.0		25.0	25.0		50.0	50.0	50.0	50.0	50.0	50.0
Yellow Time (s)	4.6	4.6		4.6	4.6		4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	1.9	1.9		1.9	1.9		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Lost Time (s)	6.5	6.5		6.5	6.5			6.6	6.6		6.6	6.6
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		Ped	Ped	Ped	Ped	Ped	Ped
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	13.0	13.0		13.0	13.0		10.0	10.0	10.0	10.0	10.0	10.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	0
Act Effct Green (s)	7.8	7.8			7.8			43.5	43.5		43.5	43.5
Actuated g/C Ratio	0.16	0.16			0.16			0.87	0.87		0.87	0.87
v/c Ratio	0.06	0.08			0.04			0.32	0.00		0.52	0.01
Control Delay	24.9	18.5			22.0			3.4	0.0		5.2	0.0

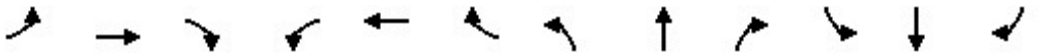
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0			0.0			0.0	0.0		0.0	0.0
Total Delay	24.9	18.5			22.0			3.4	0.0		5.2	0.0
LOS	C	B			C			A	A		A	A
Approach Delay		21.2			22.0			3.4			5.2	
Approach LOS		C			C			A			A	
Queue Length 50th (m)	0.8	0.5			0.5			0.0	0.0		0.0	0.0
Queue Length 95th (m)	6.4	6.7			5.1			39.0	0.0		88.9	0.0
Internal Link Dist (m)		1167.6			473.1			562.1			1328.9	
Turn Bay Length (m)	30.0								55.0			80.0
Base Capacity (vph)	743	881			917			1606	1490		1650	1134
Starvation Cap Reductn	0	0			0			0	0		0	0
Spillback Cap Reductn	0	0			0			0	0		0	0
Storage Cap Reductn	0	0			0			0	0		0	0
Reduced v/c Ratio	0.02	0.02			0.01			0.31	0.00		0.51	0.01

Intersection Summary

Area Type: Other
Cycle Length: 88.1
Actuated Cycle Length: 49.8
Natural Cycle: 70
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.52
Intersection Signal Delay: 5.0 Intersection LOS: A
Intersection Capacity Utilization 70.7% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 101: Wellington Road & Manning Drive





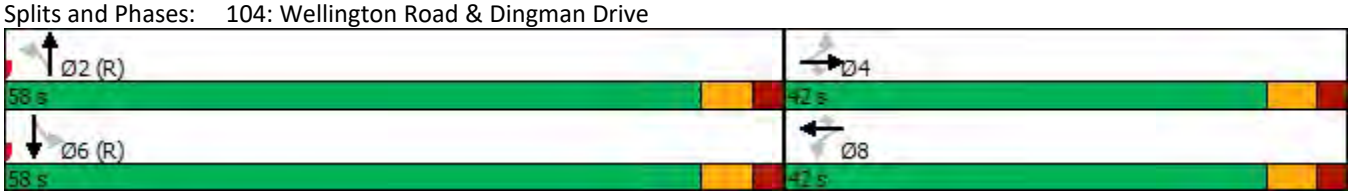
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	67	53	73	9	49	32	36	489	3	47	758	118
Future Volume (vph)	67	53	73	9	49	32	36	489	3	47	758	118
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.3	3.3	3.6	3.3	3.3	3.1	3.4	3.6	3.1	3.4	3.6
Storage Length (m)	0.0		5.0	0.0		5.0	55.0		0.0	30.0		0.0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850			0.850		0.999			0.980	
Flt Protected		0.973			0.992		0.950			0.950		
Satd. Flow (prot)	0	1692	1516	0	1735	1473	1536	3385	0	1639	3396	0
Flt Permitted		0.792			0.937		0.291			0.458		
Satd. Flow (perm)	0	1377	1516	0	1639	1473	470	3385	0	790	3396	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			56			35		1			26	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		229.7			342.8			1359.8			453.2	
Travel Time (s)		13.8			20.6			81.6			27.2	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	9%	3%	0%	6%	6%	11%	4%	33%	4%	2%	1%
Adj. Flow (vph)	71	56	78	10	52	34	38	520	3	50	806	126
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	127	78	0	62	34	38	523	0	50	932	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	4	4	4	8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	33.1	33.1	33.1	33.1	33.1	33.1	29.2	29.2		29.2	29.2	
Total Split (s)	42.0	42.0	42.0	42.0	42.0	42.0	58.0	58.0		58.0	58.0	
Total Split (%)	42.0%	42.0%	42.0%	42.0%	42.0%	42.0%	58.0%	58.0%		58.0%	58.0%	
Maximum Green (s)	35.9	35.9	35.9	35.9	35.9	35.9	51.8	51.8		51.8	51.8	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.8	3.8		3.8	3.8	
All-Red Time (s)	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4		2.4	2.4	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.1	6.1		6.1	6.1	6.2	6.2		6.2	6.2	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None	None	C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	20.0	20.0	20.0	20.0	20.0	20.0	16.0	16.0		16.0	16.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0		0	0	
Act Effct Green (s)		14.4	14.4		14.4	14.4	73.3	73.3		73.3	73.3	
Actuated g/C Ratio		0.14	0.14		0.14	0.14	0.73	0.73		0.73	0.73	
v/c Ratio		0.64	0.29		0.26	0.14	0.11	0.21		0.09	0.37	
Control Delay		54.2	17.2		38.9	12.4	5.9	4.9		5.3	5.7	

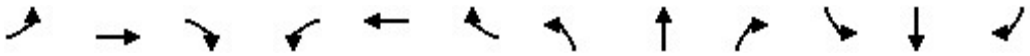
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		54.2	17.2		38.9	12.4	5.9	4.9		5.3	5.7	
LOS		D	B		D	B	A	A		A	A	
Approach Delay		40.1			29.5			5.0			5.7	
Approach LOS		D			C			A			A	
Queue Length 50th (m)		24.7	4.0		11.4	0.0	1.9	14.9		2.5	30.1	
Queue Length 95th (m)		41.3	16.1		22.2	8.1	6.6	26.4		7.5	50.6	
Internal Link Dist (m)		205.7			318.8			1335.8			429.2	
Turn Bay Length (m)			5.0			5.0	55.0			30.0		
Base Capacity (vph)		494	580		588	551	344	2480		579	2495	
Starvation Cap Reductn		0	0		0	0	0	0		0	0	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.26	0.13		0.11	0.06	0.11	0.21		0.09	0.37	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 21 (21%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.64
Intersection Signal Delay: 10.6 Intersection LOS: B
Intersection Capacity Utilization 59.1% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 104: Wellington Road & Dingman Drive

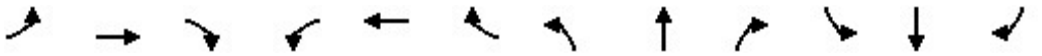




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	4	3	4	1	5	1	484	0	13	808	9
Future Volume (Veh/h)	11	4	3	4	1	5	1	484	0	13	808	9
Sign Control		Stop			Stop			Free			Free	
Grade		1%			1%			1%			0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	11	4	3	4	1	5	1	504	0	14	842	9
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1386	1380	846	1386	1385	504	851			504		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1386	1380	846	1386	1385	504	851			504		
tC, single (s)	7.3	6.5	6.5	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.7	4.0	3.6	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	90	97	99	97	99	99	100			99		
cM capacity (veh/h)	108	143	319	117	142	572	796			1071		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	18	10	505	865
Volume Left	11	4	1	14
Volume Right	3	5	0	9
cSH	130	200	796	1071
Volume to Capacity	0.14	0.05	0.00	0.01
Queue Length 95th (m)	3.7	1.3	0.0	0.3
Control Delay (s)	37.2	24.0	0.0	0.4
Lane LOS	E	C	A	A
Approach Delay (s)	37.2	24.0	0.0	0.4
Approach LOS	E	C		

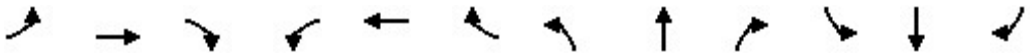
Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	62.9%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	7	16	4	6	36	16	515	5	43	850	0
Future Volume (Veh/h)	11	7	16	4	6	36	16	515	5	43	850	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			-1%			-1%			1%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	12	7	17	4	6	38	17	542	5	45	895	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1331	1566	895	1584	1564	274	895			547		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1331	1566	895	1584	1564	274	895			547		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	7.0	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	88	93	94	94	94	95	98			96		
cM capacity (veh/h)	99	105	288	63	106	721	767			1033		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	36	48	17	361	186	45	895	0
Volume Left	12	4	17	0	0	45	0	0
Volume Right	17	38	0	0	5	0	0	0
cSH	146	278	767	1700	1700	1033	1700	1700
Volume to Capacity	0.25	0.17	0.02	0.21	0.11	0.04	0.53	0.00
Queue Length 95th (m)	7.4	4.9	0.5	0.0	0.0	1.1	0.0	0.0
Control Delay (s)	37.7	20.7	9.8	0.0	0.0	8.6	0.0	0.0
Lane LOS	E	C	A			A		
Approach Delay (s)	37.7	20.7	0.3			0.4		
Approach LOS	E	C						

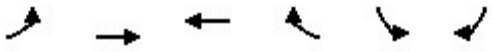
Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	56.2%	ICU Level of Service		B
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	1	16	1	1	12	5	4	37	1	8	80	1
Future Volume (vph)	1	16	1	1	12	5	4	37	1	8	80	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	1	18	1	1	13	5	4	41	1	9	88	1

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	20	19	46	98
Volume Left (vph)	1	1	4	9
Volume Right (vph)	1	5	1	1
Hadj (s)	0.18	-0.15	0.20	0.03
Departure Headway (s)	4.4	4.1	4.3	4.1
Degree Utilization, x	0.02	0.02	0.05	0.11
Capacity (veh/h)	786	845	819	872
Control Delay (s)	7.5	7.2	7.5	7.6
Approach Delay (s)	7.5	7.2	7.5	7.6
Approach LOS	A	A	A	A

Intersection Summary			
Delay	7.5		
Level of Service	A		
Intersection Capacity Utilization	16.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	16	10	7	1	5
Future Volume (Veh/h)	2	16	10	7	1	5
Sign Control		Free	Free		Stop	
Grade		2%	-2%		-3%	
Peak Hour Factor	0.60	0.60	0.60	0.60	0.60	0.60
Hourly flow rate (vph)	3	27	17	12	2	8
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	29				56	23
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	29				56	23
tC, single (s)	4.1				6.4	6.6
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.7
p0 queue free %	100				100	99
cM capacity (veh/h)	1597				955	954

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	30	29	10
Volume Left	3	0	2
Volume Right	0	12	8
cSH	1597	1700	954
Volume to Capacity	0.00	0.02	0.01
Queue Length 95th (m)	0.0	0.0	0.3
Control Delay (s)	0.7	0.0	8.8
Lane LOS	A		A
Approach Delay (s)	0.7	0.0	8.8
Approach LOS			A

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	2	27	0	1	13	51	441	6	0	417	10
Future Volume (Veh/h)	74	2	27	0	1	13	51	441	6	0	417	10
Sign Control		Stop			Stop			Free			Free	
Grade		-2%			-2%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	80	2	29	0	1	14	55	474	6	0	448	11
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1046	1038	448	1062	1032	474	448			480		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1046	1038	448	1062	1032	474	448			480		
tC, single (s)	7.2	6.5	6.3	7.1	6.5	6.2	4.3			4.6		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.4	3.5	4.0	3.3	2.4			2.6		
p0 queue free %	58	99	95	100	100	98	95			100		
cM capacity (veh/h)	189	221	601	184	222	595	1023			884		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	111	15	55	474	6	0	448	11
Volume Left	80	0	55	0	0	0	0	0
Volume Right	29	14	0	0	6	0	0	11
cSH	230	535	1023	1700	1700	1700	1700	1700
Volume to Capacity	0.48	0.03	0.05	0.28	0.00	0.00	0.26	0.01
Queue Length 95th (m)	19.2	0.7	1.4	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	34.3	11.9	8.7	0.0	0.0	0.0	0.0	0.0
Lane LOS	D	B	A					
Approach Delay (s)	34.3	11.9	0.9			0.0		
Approach LOS	D	B						

Intersection Summary				
Average Delay	4.0			
Intersection Capacity Utilization	49.1%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	52	24	498	10	142	407
Future Volume (Veh/h)	52	24	498	10	142	407
Sign Control	Stop		Free			Free
Grade	-1%		0%			0%
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	54	25	519	10	148	424
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1239	519			519	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1239	519			519	
tC, single (s)	6.5	6.3			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.4			2.2	
p0 queue free %	66	95			86	
cM capacity (veh/h)	160	536			1052	

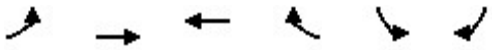
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	79	519	10	148	424
Volume Left	54	0	0	148	0
Volume Right	25	0	10	0	0
cSH	206	1700	1700	1052	1700
Volume to Capacity	0.38	0.31	0.01	0.14	0.25
Queue Length 95th (m)	13.5	0.0	0.0	3.9	0.0
Control Delay (s)	32.9	0.0	0.0	9.0	0.0
Lane LOS	D			A	
Approach Delay (s)	32.9	0.0		2.3	
Approach LOS	D				

Intersection Summary			
Average Delay	3.3		
Intersection Capacity Utilization	48.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	27	23	39	487	531	30
Future Volume (Veh/h)	27	23	39	487	531	30
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Hourly flow rate (vph)	27	23	39	492	536	30
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1106	536	566			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1106	536	566			
tC, single (s)	6.4	6.3	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.4	2.2			
p0 queue free %	88	96	96			
cM capacity (veh/h)	226	524	991			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	50	39	492	536	30
Volume Left	27	39	0	0	0
Volume Right	23	0	0	0	30
cSH	306	991	1700	1700	1700
Volume to Capacity	0.16	0.04	0.29	0.32	0.02
Queue Length 95th (m)	4.6	1.0	0.0	0.0	0.0
Control Delay (s)	19.1	8.8	0.0	0.0	0.0
Lane LOS	C	A			
Approach Delay (s)	19.1	0.6		0.0	
Approach LOS	C				

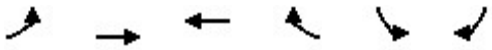
Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	42.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	39	20	3	5	0
Future Volume (Veh/h)	2	39	20	3	5	0
Sign Control		Free	Free		Stop	
Grade		-1%	0%		0%	
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74
Hourly flow rate (vph)	3	53	27	4	7	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	31				88	29
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	31				88	29
tC, single (s)	4.5				6.6	6.8
tC, 2 stage (s)						
tF (s)	2.5				3.7	3.8
p0 queue free %	100				99	100
cM capacity (veh/h)	1378				858	908

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	56	31	7
Volume Left	3	0	7
Volume Right	0	4	0
cSH	1378	1700	858
Volume to Capacity	0.00	0.02	0.01
Queue Length 95th (m)	0.1	0.0	0.2
Control Delay (s)	0.4	0.0	9.2
Lane LOS	A		A
Approach Delay (s)	0.4	0.0	9.2
Approach LOS			A

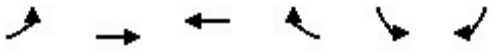
Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	13.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	29	19	0	0	1
Future Volume (Veh/h)	0	29	19	0	0	1
Sign Control		Free	Free		Stop	
Grade		1%	1%		0%	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	0	35	23	0	0	1
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	23				58	23
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	23				58	23
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1605				954	1060

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	35	23	1
Volume Left	0	0	0
Volume Right	0	0	1
cSH	1700	1700	1060
Volume to Capacity	0.02	0.01	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	8.4
Lane LOS			A
Approach Delay (s)	0.0	0.0	8.4
Approach LOS			A

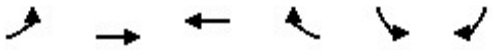
Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	8	15	12	11	16	14
Future Volume (Veh/h)	8	15	12	11	16	14
Sign Control		Free	Free		Stop	
Grade		1%	1%		0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	11	20	16	15	21	19
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	31				66	24
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	31				66	24
tC, single (s)	5.1				7.4	6.2
tC, 2 stage (s)						
tF (s)	3.1				4.4	3.3
p0 queue free %	99				97	98
cM capacity (veh/h)	1126				737	1059

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	31	31	40
Volume Left	11	0	21
Volume Right	0	15	19
cSH	1126	1700	861
Volume to Capacity	0.01	0.02	0.05
Queue Length 95th (m)	0.2	0.0	1.2
Control Delay (s)	3.0	0.0	9.4
Lane LOS	A		A
Approach Delay (s)	3.0	0.0	9.4
Approach LOS			A

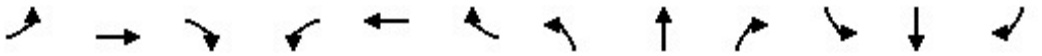
Intersection Summary			
Average Delay		4.6	
Intersection Capacity Utilization		17.9%	ICU Level of Service A
Analysis Period (min)		15	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	32	24	2	7	7
Future Volume (Veh/h)	0	32	24	2	7	7
Sign Control		Free	Free		Stop	
Grade		0%	-1%		0%	
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74
Hourly flow rate (vph)	0	43	32	3	9	9
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						3
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	35				76	34
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	35				76	34
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	99
cM capacity (veh/h)	1589				932	1046

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	43	35	18
Volume Left	0	0	9
Volume Right	0	3	9
cSH	1589	1700	1863
Volume to Capacity	0.00	0.02	0.01
Queue Length 95th (m)	0.0	0.0	0.2
Control Delay (s)	0.0	0.0	8.7
Lane LOS			A
Approach Delay (s)	0.0	0.0	8.7
Approach LOS			A

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



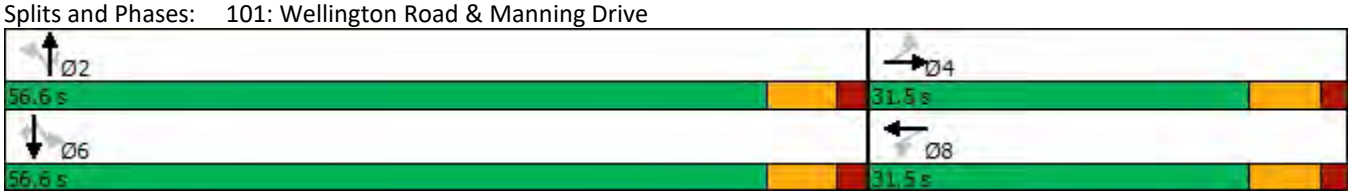
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	6	3	1	13	10	3	979	1	3	337	30
Future Volume (vph)	27	6	3	1	13	10	3	979	1	3	337	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.3	3.7	3.6	3.3	3.0	3.6	3.6	3.5	3.8	3.6	3.5	3.9
Storage Length (m)	30.0		0.0	25.0		0.0	0.0		55.0	0.0		80.0
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.950			0.934				0.850			0.850
Flt Protected	0.950			0.950								
Satd. Flow (prot)	1020	1304	0	1745	1239	0	0	1842	825	0	1760	987
Flt Permitted								0.999			0.994	
Satd. Flow (perm)	1074	1304	0	1837	1239	0	0	1840	825	0	1749	987
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			11				43			43
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		1191.6			497.1			586.1			1352.9	
Travel Time (s)		53.6			22.4			26.4			60.9	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	71%	60%	0%	0%	50%	13%	0%	2%	100%	100%	6%	69%
Adj. Flow (vph)	29	6	3	1	14	11	3	1041	1	3	359	32
Shared Lane Traffic (%)												
Lane Group Flow (vph)	29	9	0	1	25	0	0	1044	1	0	362	32
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		8	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	26.5	26.5		26.5	26.5		24.6	24.6	24.6	24.6	24.6	24.6
Total Split (s)	31.5	31.5		31.5	31.5		56.6	56.6	56.6	56.6	56.6	56.6
Total Split (%)	35.8%	35.8%		35.8%	35.8%		64.2%	64.2%	64.2%	64.2%	64.2%	64.2%
Maximum Green (s)	25.0	25.0		25.0	25.0		50.0	50.0	50.0	50.0	50.0	50.0
Yellow Time (s)	4.6	4.6		4.6	4.6		4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	1.9	1.9		1.9	1.9		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Lost Time (s)	6.5	6.5		6.5	6.5			6.6	6.6		6.6	6.6
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		Ped	Ped	Ped	Ped	Ped	Ped
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	13.0	13.0		13.0	13.0		10.0	10.0	10.0	10.0	10.0	10.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	0
Act Effct Green (s)	8.8	8.8		8.6	8.6			57.3	57.3		57.3	57.3
Actuated g/C Ratio	0.13	0.13		0.13	0.13			0.88	0.88		0.88	0.88
v/c Ratio	0.20	0.05		0.00	0.15			0.65	0.00		0.24	0.04
Control Delay	31.3	24.4		27.0	22.6			8.3	0.0		3.2	1.2

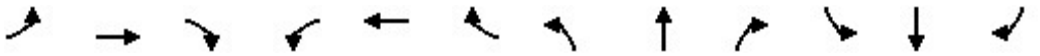
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	31.3	24.4		27.0	22.6			8.3	0.0		3.2	1.2
LOS	C	C		C	C			A	A		A	A
Approach Delay		29.7			22.8			8.3			3.1	
Approach LOS		C			C			A			A	
Queue Length 50th (m)	2.8	0.6		0.1	1.4			0.0	0.0		0.0	0.0
Queue Length 95th (m)	11.1	4.7		1.4	8.4			#208.8	0.0		31.7	1.9
Internal Link Dist (m)		1167.6			473.1			562.1			1328.9	
Turn Bay Length (m)	30.0			25.0					55.0			80.0
Base Capacity (vph)	421	513		720	492			1572	711		1494	849
Starvation Cap Reductn	0	0		0	0			0	0		0	0
Spillback Cap Reductn	0	0		0	0			0	0		0	0
Storage Cap Reductn	0	0		0	0			0	0		0	0
Reduced v/c Ratio	0.07	0.02		0.00	0.05			0.66	0.00		0.24	0.04

Intersection Summary

Area Type: Other
Cycle Length: 88.1
Actuated Cycle Length: 65.4
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.65
Intersection Signal Delay: 7.7 Intersection LOS: A
Intersection Capacity Utilization 79.8% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 101: Wellington Road & Manning Drive





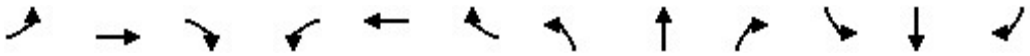
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	102	48	72	9	22	40	57	1021	3	20	527	78
Future Volume (vph)	102	48	72	9	22	40	57	1021	3	20	527	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.3	3.3	3.6	3.3	3.3	3.1	3.4	3.6	3.1	3.4	3.6
Storage Length (m)	0.0		5.0	0.0		5.0	55.0		0.0	30.0		0.0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850			0.850					0.981	
Flt Protected		0.967			0.986		0.950			0.950		
Satd. Flow (prot)	0	1691	1432	0	1741	1419	1536	3295	0	1705	3050	0
Flt Permitted		0.775			0.898		0.378			0.206		
Satd. Flow (perm)	0	1355	1432	0	1586	1419	611	3295	0	370	3050	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			46			43					23	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		229.7			342.8			1359.8			453.2	
Travel Time (s)		13.8			20.6			81.6			27.2	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	6%	3%	9%	14%	0%	10%	11%	7%	50%	0%	13%	17%
Adj. Flow (vph)	117	55	83	10	25	46	66	1174	3	23	606	90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	172	83	0	35	46	66	1177	0	23	696	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	4	4	4	8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	33.1	33.1	33.1	33.1	33.1	33.1	29.2	29.2		29.2	29.2	
Total Split (s)	45.0	45.0	45.0	45.0	45.0	45.0	55.0	55.0		55.0	55.0	
Total Split (%)	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	55.0%	55.0%		55.0%	55.0%	
Maximum Green (s)	38.9	38.9	38.9	38.9	38.9	38.9	48.8	48.8		48.8	48.8	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.8	3.8		3.8	3.8	
All-Red Time (s)	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4		2.4	2.4	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.1	6.1		6.1	6.1	6.2	6.2		6.2	6.2	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None	None	C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	20.0	20.0	20.0	20.0	20.0	20.0	16.0	16.0		16.0	16.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0		0	0	
Act Effct Green (s)		18.2	18.2		18.2	18.2	69.5	69.5		69.5	69.5	
Actuated g/C Ratio		0.18	0.18		0.18	0.18	0.70	0.70		0.70	0.70	
v/c Ratio		0.70	0.28		0.12	0.16	0.16	0.51		0.09	0.33	
Control Delay		52.5	18.9		32.3	11.4	7.8	9.0		7.7	7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		52.5	18.9		32.3	11.4	7.8	9.0		7.7	7.0	
LOS		D	B		C	B	A	A		A	A	
Approach Delay		41.6			20.5			9.0			7.0	
Approach LOS		D			C			A			A	
Queue Length 50th (m)		33.2	6.4		6.0	0.5	4.0	52.5		1.3	24.7	
Queue Length 95th (m)		49.2	17.2		12.9	8.7	11.5	82.7		5.2	41.5	
Internal Link Dist (m)		205.7			318.8			1335.8			429.2	
Turn Bay Length (m)			5.0			5.0	55.0			30.0		
Base Capacity (vph)		527	585		616	578	424	2290		257	2126	
Starvation Cap Reductn		0	0		0	0	0	0		0	0	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.33	0.14		0.06	0.08	0.16	0.51		0.09	0.33	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 2 (2%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.70
Intersection Signal Delay: 12.4 Intersection LOS: B
Intersection Capacity Utilization 64.4% ICU Level of Service C
Analysis Period (min) 15

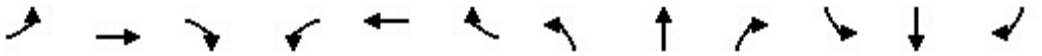
Splits and Phases: 104: Wellington Road & Dingman Drive



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	0	4	4	4	23	5	1009	3	5	359	1
Future Volume (Veh/h)	5	0	4	4	4	23	5	1009	3	5	359	1
Sign Control		Stop			Stop			Free			Free	
Grade		1%			1%			1%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	5	0	4	4	4	25	5	1109	3	5	395	1
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1553	1528	396	1530	1526	1110	396			1112		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1553	1528	396	1530	1526	1110	396			1112		
tC, single (s)	7.9	6.5	6.9	7.1	6.5	6.3	4.6			4.6		
tC, 2 stage (s)												
tF (s)	4.2	4.0	3.9	3.5	4.0	3.4	2.7			2.7		
p0 queue free %	91	100	99	96	97	90	99			99		
cM capacity (veh/h)	54	117	533	95	117	244	944			480		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	9	33	1117	401
Volume Left	5	4	5	5
Volume Right	4	25	3	1
cSH	90	184	944	480
Volume to Capacity	0.10	0.18	0.01	0.01
Queue Length 95th (m)	2.6	5.1	0.1	0.3
Control Delay (s)	49.2	28.7	0.2	0.3
Lane LOS	E	D	A	A
Approach Delay (s)	49.2	28.7	0.2	0.3
Approach LOS	E	D		

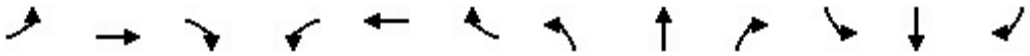
Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	66.1%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	9	45	3	10	35	14	1031	10	22	582	4
Future Volume (Veh/h)	14	9	45	3	10	35	14	1031	10	22	582	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			-1%			-1%			1%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	17	11	54	4	12	42	17	1227	12	26	693	5
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1440	2018	693	2072	2017	620	698			1239		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1440	2018	693	2072	2017	620	698			1239		
tC, single (s)	8.0	6.5	7.1	8.5	6.5	7.0	4.3			4.2		
tC, 2 stage (s)												
tF (s)	3.8	4.0	3.4	4.0	4.0	3.3	2.3			2.3		
p0 queue free %	68	80	85	66	78	90	98			95		
cM capacity (veh/h)	53	55	370	12	55	426	849			536		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	82	58	17	818	421	26	693	5
Volume Left	17	4	17	0	0	26	0	0
Volume Right	54	42	0	0	12	0	0	5
cSH	123	89	849	1700	1700	536	1700	1700
Volume to Capacity	0.67	0.65	0.02	0.48	0.25	0.05	0.41	0.00
Queue Length 95th (m)	28.4	24.9	0.5	0.0	0.0	1.2	0.0	0.0
Control Delay (s)	79.4	101.4	9.3	0.0	0.0	12.1	0.0	0.0
Lane LOS	F	F	A			B		
Approach Delay (s)	79.4	101.4	0.1			0.4		
Approach LOS	F	F						

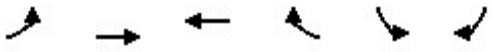
Intersection Summary				
Average Delay	6.1			
Intersection Capacity Utilization	45.7%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	0	22	3	4	19	6	8	83	4	3	29	3
Future Volume (vph)	0	22	3	4	19	6	8	83	4	3	29	3
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	24	3	4	21	7	9	91	4	3	32	3

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	27	32	104	38
Volume Left (vph)	0	4	9	3
Volume Right (vph)	3	7	4	3
Hadj (s)	0.31	0.05	0.02	0.23
Departure Headway (s)	4.6	4.3	4.1	4.4
Degree Utilization, x	0.03	0.04	0.12	0.05
Capacity (veh/h)	760	807	855	805
Control Delay (s)	7.7	7.5	7.6	7.6
Approach Delay (s)	7.7	7.5	7.6	7.6
Approach LOS	A	A	A	A

Intersection Summary			
Delay	7.6		
Level of Service	A		
Intersection Capacity Utilization	18.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	11	18	29	1	0	7
Future Volume (Veh/h)	11	18	29	1	0	7
Sign Control		Free	Free		Stop	
Grade		2%	-2%		-3%	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	14	22	36	1	0	9
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	37				86	36
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	37				86	36
tC, single (s)	4.3				6.4	7.0
tC, 2 stage (s)						
tF (s)	2.4				3.5	4.0
p0 queue free %	99				100	99
cM capacity (veh/h)	1437				911	851

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	36	37	9
Volume Left	14	0	0
Volume Right	0	1	9
cSH	1437	1700	851
Volume to Capacity	0.01	0.02	0.01
Queue Length 95th (m)	0.2	0.0	0.3
Control Delay (s)	3.0	0.0	9.3
Lane LOS	A		A
Approach Delay (s)	3.0	0.0	9.3
Approach LOS			A

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	18.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	215	12	0	1	0	31	6	410	4	26	324	6
Future Volume (Veh/h)	215	12	0	1	0	31	6	410	4	26	324	6
Sign Control		Stop			Stop			Free			Free	
Grade		-2%			-2%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	247	14	0	1	0	36	7	471	5	30	372	7
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	953	922	372	924	917	471	372			476		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	953	922	372	924	917	471	372			476		
tC, single (s)	7.1	7.2	6.2	7.1	6.5	6.7	4.5			4.4		
tC, 2 stage (s)												
tF (s)	3.5	4.6	3.3	3.5	4.0	3.7	2.6			2.5		
p0 queue free %	0	93	100	100	100	93	99			97		
cM capacity (veh/h)	216	204	679	232	264	511	1005			942		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	261	37	7	471	5	30	372	7
Volume Left	247	1	7	0	0	30	0	0
Volume Right	0	36	0	0	5	0	0	7
cSH	215	494	1005	1700	1700	942	1700	1700
Volume to Capacity	1.21	0.07	0.01	0.28	0.00	0.03	0.22	0.00
Queue Length 95th (m)	105.4	1.9	0.2	0.0	0.0	0.8	0.0	0.0
Control Delay (s)	176.9	12.9	8.6	0.0	0.0	8.9	0.0	0.0
Lane LOS	F	B	A			A		
Approach Delay (s)	176.9	12.9	0.1			0.7		
Approach LOS	F	B						

Intersection Summary				
Average Delay	39.5			
Intersection Capacity Utilization	47.5%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	10	651	10	92	345
Future Volume (Veh/h)	10	10	651	10	92	345
Sign Control	Stop		Free			Free
Grade	-1%		0%			0%
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	11	11	748	11	106	397
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1357	748			748	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1357	748			748	
tC, single (s)	6.4	6.2			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.3	
p0 queue free %	92	97			87	
cM capacity (veh/h)	145	416			838	

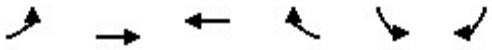
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	22	748	11	106	397
Volume Left	11	0	0	106	0
Volume Right	11	0	11	0	0
cSH	215	1700	1700	838	1700
Volume to Capacity	0.10	0.44	0.01	0.13	0.23
Queue Length 95th (m)	2.7	0.0	0.0	3.5	0.0
Control Delay (s)	23.6	0.0	0.0	9.9	0.0
Lane LOS	C			A	
Approach Delay (s)	23.6	0.0		2.1	
Approach LOS	C				

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	52.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	35	12	8	656	428	30
Future Volume (Veh/h)	35	12	8	656	428	30
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	39	13	9	737	481	34
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1236	481	515			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1236	481	515			
tC, single (s)	6.4	6.3	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.4	2.2			
p0 queue free %	80	98	99			
cM capacity (veh/h)	195	567	1061			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	52	9	737	481	34
Volume Left	39	9	0	0	0
Volume Right	13	0	0	0	34
cSH	233	1061	1700	1700	1700
Volume to Capacity	0.22	0.01	0.43	0.28	0.02
Queue Length 95th (m)	6.7	0.2	0.0	0.0	0.0
Control Delay (s)	24.8	8.4	0.0	0.0	0.0
Lane LOS	C	A			
Approach Delay (s)	24.8	0.1		0.0	
Approach LOS	C				

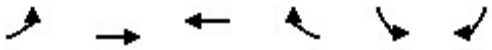
Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	44.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	23	42	9	9	4
Future Volume (Veh/h)	5	23	42	9	9	4
Sign Control		Free	Free		Stop	
Grade		-1%	0%		0%	
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67
Hourly flow rate (vph)	7	34	63	13	13	6
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	76				118	70
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	76				118	70
tC, single (s)	4.5				7.1	6.9
tC, 2 stage (s)						
tF (s)	2.6				4.1	3.9
p0 queue free %	99				98	99
cM capacity (veh/h)	1295				740	833

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	41	76	19
Volume Left	7	0	13
Volume Right	0	13	6
cSH	1295	1700	767
Volume to Capacity	0.01	0.04	0.02
Queue Length 95th (m)	0.1	0.0	0.6
Control Delay (s)	1.4	0.0	9.8
Lane LOS	A		A
Approach Delay (s)	1.4	0.0	9.8
Approach LOS			A

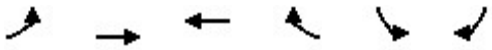
Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	15.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	44	31	5	5	5
Future Volume (Veh/h)	2	44	31	5	5	5
Sign Control		Free	Free		Stop	
Grade		1%	1%		0%	
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69
Hourly flow rate (vph)	3	64	45	7	7	7
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	52				118	48
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	52				118	48
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	99
cM capacity (veh/h)	1567				880	1026

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	67	52	14
Volume Left	3	0	7
Volume Right	0	7	7
cSH	1567	1700	948
Volume to Capacity	0.00	0.03	0.01
Queue Length 95th (m)	0.0	0.0	0.4
Control Delay (s)	0.3	0.0	8.9
Lane LOS	A		A
Approach Delay (s)	0.3	0.0	8.9
Approach LOS			A

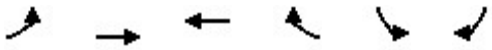
Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	13.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	23	13	20	23	20	13
Future Volume (Veh/h)	23	13	20	23	20	13
Sign Control		Free	Free		Stop	
Grade		1%	1%		0%	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	29	17	26	29	26	17
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	55				116	40
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	55				116	40
tC, single (s)	5.1				7.4	6.2
tC, 2 stage (s)						
tF (s)	3.1				4.4	3.3
p0 queue free %	97				96	98
cM capacity (veh/h)	1100				674	1036

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	46	55	43
Volume Left	29	0	26
Volume Right	0	29	17
cSH	1100	1700	782
Volume to Capacity	0.03	0.03	0.05
Queue Length 95th (m)	0.6	0.0	1.4
Control Delay (s)	5.4	0.0	9.9
Lane LOS	A		A
Approach Delay (s)	5.4	0.0	9.9
Approach LOS			A

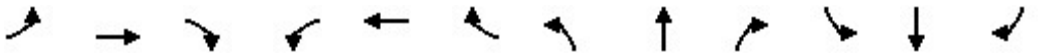
Intersection Summary			
Average Delay	4.7		
Intersection Capacity Utilization	18.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	45	48	3	1	3
Future Volume (Veh/h)	5	45	48	3	1	3
Sign Control		Free	Free		Stop	
Grade		0%	-1%		0%	
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Hourly flow rate (vph)	8	69	74	5	2	5
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						3
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	79				162	76
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	79				162	76
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				100	99
cM capacity (veh/h)	1532				830	990

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	77	79	7
Volume Left	8	0	2
Volume Right	0	5	5
cSH	1532	1700	1386
Volume to Capacity	0.01	0.05	0.01
Queue Length 95th (m)	0.1	0.0	0.1
Control Delay (s)	0.8	0.0	8.9
Lane LOS	A		A
Approach Delay (s)	0.8	0.0	8.9
Approach LOS			A

Intersection Summary			
Average Delay		0.8	
Intersection Capacity Utilization		16.5%	ICU Level of Service A
Analysis Period (min)		15	



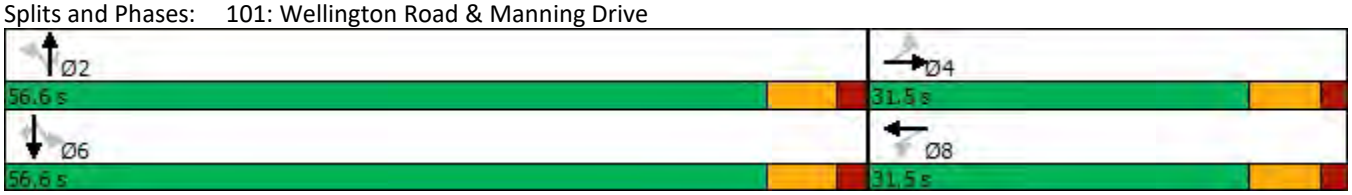
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	12	14	0	10	4	15	604	4	12	1031	17
Future Volume (vph)	27	12	14	0	10	4	15	604	4	12	1031	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.3	3.7	3.6	3.3	3.0	3.6	3.6	3.5	3.8	3.6	3.5	3.9
Storage Length (m)	30.0		0.0	25.0		0.0	0.0		55.0	0.0		80.0
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.919			0.957				0.850			0.850
Flt Protected	0.950							0.999			0.999	
Satd. Flow (prot)	1312	1634	0	1837	1697	0	0	1820	1651	0	1841	1255
Flt Permitted	0.769							0.970			0.992	
Satd. Flow (perm)	1062	1634	0	1837	1697	0	0	1767	1651	0	1828	1255
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			4				43			43
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		1191.6			497.1			586.1			1352.9	
Travel Time (s)		53.6			22.4			26.4			60.9	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	33%	0%	15%	0%	0%	0%	8%	3%	0%	0%	2%	33%
Adj. Flow (vph)	28	12	14	0	10	4	15	623	4	12	1063	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	28	26	0	0	14	0	0	638	4	0	1075	18
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		8	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	26.5	26.5		26.5	26.5		24.6	24.6	24.6	24.6	24.6	24.6
Total Split (s)	31.5	31.5		31.5	31.5		56.6	56.6	56.6	56.6	56.6	56.6
Total Split (%)	35.8%	35.8%		35.8%	35.8%		64.2%	64.2%	64.2%	64.2%	64.2%	64.2%
Maximum Green (s)	25.0	25.0		25.0	25.0		50.0	50.0	50.0	50.0	50.0	50.0
Yellow Time (s)	4.6	4.6		4.6	4.6		4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	1.9	1.9		1.9	1.9		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Lost Time (s)	6.5	6.5		6.5	6.5			6.6	6.6		6.6	6.6
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		Ped	Ped	Ped	Ped	Ped	Ped
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	13.0	13.0		13.0	13.0		10.0	10.0	10.0	10.0	10.0	10.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	0
Act Effct Green (s)	8.2	8.2			8.2			63.6	63.6		63.6	63.6
Actuated g/C Ratio	0.11	0.11			0.11			0.83	0.83		0.83	0.83
v/c Ratio	0.25	0.14			0.08			0.43	0.00		0.71	0.02
Control Delay	36.6	21.8			26.8			4.9	0.0		10.1	0.5

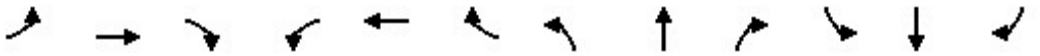
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0			0.0			0.0	0.0		0.0	0.0
Total Delay	36.6	21.8			26.8			4.9	0.0		10.1	0.5
LOS	D	C			C			A	A		B	A
Approach Delay		29.5			26.8			4.9			9.9	
Approach LOS		C			C			A			A	
Queue Length 50th (m)	4.6	2.0			1.6			32.8	0.0		86.1	0.0
Queue Length 95th (m)	11.0	8.3			6.1			61.6	0.0		#211.6	0.7
Internal Link Dist (m)		1167.6			473.1			562.1			1328.9	
Turn Bay Length (m)	30.0								55.0			80.0
Base Capacity (vph)	349	546			561			1471	1381		1521	1052
Starvation Cap Reductn	0	0			0			0	0		0	0
Spillback Cap Reductn	0	0			0			0	0		0	0
Storage Cap Reductn	0	0			0			0	0		0	0
Reduced v/c Ratio	0.08	0.05			0.02			0.43	0.00		0.71	0.02

Intersection Summary

Area Type: Other
Cycle Length: 88.1
Actuated Cycle Length: 76.4
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.71
Intersection Signal Delay: 8.8 Intersection LOS: A
Intersection Capacity Utilization 83.0% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 101: Wellington Road & Manning Drive





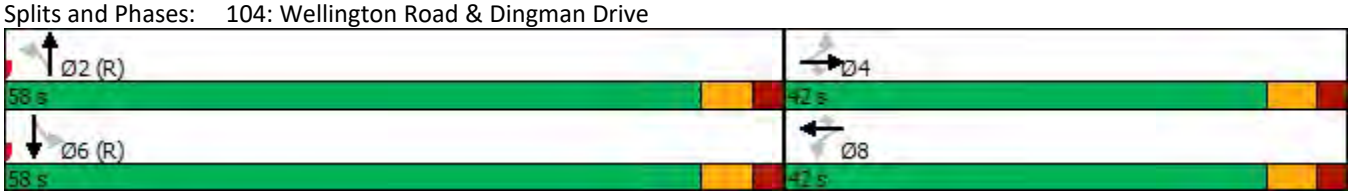
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	86	68	94	12	63	41	46	640	4	61	987	153
Future Volume (vph)	86	68	94	12	63	41	46	640	4	61	987	153
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.3	3.3	3.6	3.3	3.3	3.1	3.4	3.6	3.1	3.4	3.6
Storage Length (m)	0.0		5.0	0.0		5.0	55.0		0.0	30.0		0.0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850			0.850		0.999			0.980	
Flt Protected		0.973			0.992		0.950			0.950		
Satd. Flow (prot)	0	1692	1516	0	1735	1473	1536	3385	0	1639	3396	0
Flt Permitted		0.783			0.933		0.199			0.384		
Satd. Flow (perm)	0	1361	1516	0	1632	1473	322	3385	0	663	3396	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			56			44		1			26	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		229.7			342.8			1359.8			453.2	
Travel Time (s)		13.8			20.6			81.6			27.2	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	9%	3%	0%	6%	6%	11%	4%	33%	4%	2%	1%
Adj. Flow (vph)	91	72	100	13	67	44	49	681	4	65	1050	163
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	163	100	0	80	44	49	685	0	65	1213	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	4	4	4	8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	33.1	33.1	33.1	33.1	33.1	33.1	29.2	29.2		29.2	29.2	
Total Split (s)	42.0	42.0	42.0	42.0	42.0	42.0	58.0	58.0		58.0	58.0	
Total Split (%)	42.0%	42.0%	42.0%	42.0%	42.0%	42.0%	58.0%	58.0%		58.0%	58.0%	
Maximum Green (s)	35.9	35.9	35.9	35.9	35.9	35.9	51.8	51.8		51.8	51.8	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.8	3.8		3.8	3.8	
All-Red Time (s)	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4		2.4	2.4	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.1	6.1		6.1	6.1	6.2	6.2		6.2	6.2	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None	None	C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	20.0	20.0	20.0	20.0	20.0	20.0	16.0	16.0		16.0	16.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0		0	0	
Act Effct Green (s)		17.3	17.3		17.3	17.3	70.4	70.4		70.4	70.4	
Actuated g/C Ratio		0.17	0.17		0.17	0.17	0.70	0.70		0.70	0.70	
v/c Ratio		0.69	0.32		0.28	0.15	0.22	0.29		0.14	0.51	
Control Delay		53.5	19.4		36.6	10.7	9.6	6.5		7.0	8.2	

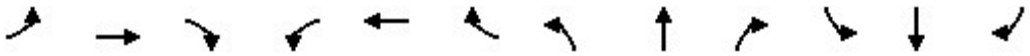
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		53.5	19.4		36.6	10.7	9.6	6.5		7.0	8.2	
LOS		D	B		D	B	A	A		A	A	
Approach Delay		40.6			27.4			6.7			8.2	
Approach LOS		D			C			A			A	
Queue Length 50th (m)		31.6	7.7		14.3	0.0	3.0	23.6		3.8	50.6	
Queue Length 95th (m)		49.7	20.7		25.7	8.7	10.8	40.8		11.2	84.0	
Internal Link Dist (m)		205.7			318.8			1335.8			429.2	
Turn Bay Length (m)			5.0			5.0	55.0			30.0		
Base Capacity (vph)		488	580		585	557	226	2383		466	2399	
Starvation Cap Reductn		0	0		0	0	0	0		0	0	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.33	0.17		0.14	0.08	0.22	0.29		0.14	0.51	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 21 (21%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 12.3 Intersection LOS: B
Intersection Capacity Utilization 68.4% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 104: Wellington Road & Dingman Drive

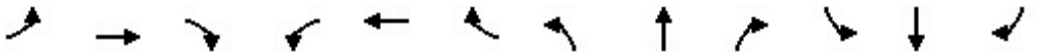




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	5	4	5	1	6	1	633	0	17	1051	12
Future Volume (Veh/h)	14	5	4	5	1	6	1	633	0	17	1051	12
Sign Control		Stop			Stop			Free			Free	
Grade		1%			1%			1%			0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	15	5	4	5	1	6	1	659	0	18	1095	13
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1805	1798	1102	1805	1805	659	1108			659		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1805	1798	1102	1805	1805	659	1108			659		
tC, single (s)	7.3	6.5	6.5	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.7	4.0	3.6	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	72	94	98	91	99	99	100			98		
cM capacity (veh/h)	54	79	224	57	78	467	638			939		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	24	12	660	1126
Volume Left	15	5	1	18
Volume Right	4	6	0	13
cSH	67	106	638	939
Volume to Capacity	0.36	0.11	0.00	0.02
Queue Length 95th (m)	10.8	3.0	0.0	0.5
Control Delay (s)	86.9	43.3	0.0	0.6
Lane LOS	F	E	A	A
Approach Delay (s)	86.9	43.3	0.0	0.6
Approach LOS	F	E		

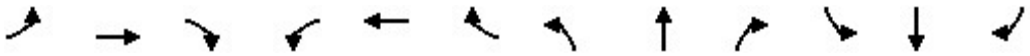
Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	79.1%	ICU Level of Service	D	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	9	21	5	8	46	21	673	6	55	1105	0
Future Volume (Veh/h)	14	9	21	5	8	46	21	673	6	55	1105	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			-1%			-1%			1%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	15	9	22	5	8	48	22	708	6	58	1163	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1729	2037	1163	2060	2034	357	1163			714		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1729	2037	1163	2060	2034	357	1163			714		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	7.0	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	66	83	88	78	85	92	96			94		
cM capacity (veh/h)	44	52	191	23	52	637	608			895		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	46	61	22	472	242	58	1163	0
Volume Left	15	5	22	0	0	58	0	0
Volume Right	22	48	0	0	6	0	0	0
cSH	73	137	608	1700	1700	895	1700	1700
Volume to Capacity	0.63	0.44	0.04	0.28	0.14	0.06	0.68	0.00
Queue Length 95th (m)	22.4	15.9	0.9	0.0	0.0	1.7	0.0	0.0
Control Delay (s)	116.2	50.8	11.1	0.0	0.0	9.3	0.0	0.0
Lane LOS	F	F	B			A		
Approach Delay (s)	116.2	50.8	0.3			0.4		
Approach LOS	F	F						

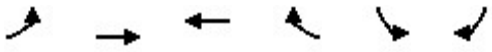
Intersection Summary				
Average Delay	4.5			
Intersection Capacity Utilization	71.1%	ICU Level of Service		C
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	1	27	1	1	21	6	5	48	1	11	104	1
Future Volume (vph)	1	27	1	1	21	6	5	48	1	11	104	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	1	30	1	1	23	7	5	53	1	12	114	1

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	32	31	59	127
Volume Left (vph)	1	1	5	12
Volume Right (vph)	1	7	1	1
Hadj (s)	0.19	-0.13	0.20	0.03
Departure Headway (s)	4.5	4.2	4.4	4.1
Degree Utilization, x	0.04	0.04	0.07	0.15
Capacity (veh/h)	756	812	798	853
Control Delay (s)	7.7	7.4	7.7	7.8
Approach Delay (s)	7.7	7.4	7.7	7.8
Approach LOS	A	A	A	A

Intersection Summary			
Delay	7.7		
Level of Service	A		
Intersection Capacity Utilization	18.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	8	21	19	9	1	7
Future Volume (Veh/h)	8	21	19	9	1	7
Sign Control		Free	Free		Stop	
Grade		2%	-2%		-3%	
Peak Hour Factor	0.60	0.60	0.60	0.60	0.60	0.60
Hourly flow rate (vph)	13	35	32	15	2	12
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	47				100	40
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	47				100	40
tC, single (s)	4.1				6.4	6.6
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.7
p0 queue free %	99				100	99
cM capacity (veh/h)	1573				896	933

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	48	47	14
Volume Left	13	0	2
Volume Right	0	15	12
cSH	1573	1700	928
Volume to Capacity	0.01	0.03	0.02
Queue Length 95th (m)	0.2	0.0	0.4
Control Delay (s)	2.0	0.0	8.9
Lane LOS	A		A
Approach Delay (s)	2.0	0.0	8.9
Approach LOS			A

Intersection Summary			
Average Delay		2.0	
Intersection Capacity Utilization		18.1%	ICU Level of Service
Analysis Period (min)		15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	3	35	0	1	23	66	569	8	6	538	13
Future Volume (Veh/h)	95	3	35	0	1	23	66	569	8	6	538	13
Sign Control		Stop			Stop			Free			Free	
Grade		-2%			-2%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	102	3	38	0	1	25	71	612	9	6	578	14
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1370	1353	578	1384	1344	612	578			621		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1370	1353	578	1384	1344	612	578			621		
tC, single (s)	7.2	6.5	6.3	7.1	6.5	6.2	4.3			4.6		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.4	3.5	4.0	3.3	2.4			2.6		
p0 queue free %	4	98	92	100	99	95	92			99		
cM capacity (veh/h)	107	139	506	104	140	497	912			776		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	143	26	71	612	9	6	578	14
Volume Left	102	0	71	0	0	6	0	0
Volume Right	38	25	0	0	9	0	0	14
cSH	136	453	912	1700	1700	776	1700	1700
Volume to Capacity	1.05	0.06	0.08	0.36	0.01	0.01	0.34	0.01
Queue Length 95th (m)	62.3	1.5	2.0	0.0	0.0	0.2	0.0	0.0
Control Delay (s)	156.0	13.4	9.3	0.0	0.0	9.7	0.0	0.0
Lane LOS	F	B	A			A		
Approach Delay (s)	156.0	13.4	1.0			0.1		
Approach LOS	F	B						

Intersection Summary				
Average Delay	16.0			
Intersection Capacity Utilization	57.5%	ICU Level of Service		B
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	67	31	648	13	183	531
Future Volume (Veh/h)	67	31	648	13	183	531
Sign Control	Stop		Free			Free
Grade	-1%		0%			0%
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	70	32	675	14	191	553
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1610	675			675	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1610	675			675	
tC, single (s)	6.5	6.3			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.4			2.2	
p0 queue free %	20	93			79	
cM capacity (veh/h)	87	436			921	

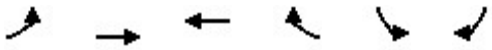
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	102	675	14	191	553
Volume Left	70	0	0	191	0
Volume Right	32	0	14	0	0
cSH	117	1700	1700	921	1700
Volume to Capacity	0.88	0.40	0.01	0.21	0.33
Queue Length 95th (m)	42.7	0.0	0.0	6.2	0.0
Control Delay (s)	121.6	0.0	0.0	9.9	0.0
Lane LOS	F			A	
Approach Delay (s)	121.6	0.0		2.5	
Approach LOS	F				

Intersection Summary			
Average Delay	9.3		
Intersection Capacity Utilization	59.9%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	35	30	50	634	691	39
Future Volume (Veh/h)	35	30	50	634	691	39
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Hourly flow rate (vph)	35	30	51	640	698	39
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1440	698	737			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1440	698	737			
tC, single (s)	6.4	6.3	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.4	2.2			
p0 queue free %	75	93	94			
cM capacity (veh/h)	139	422	855			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	65	51	640	698	39
Volume Left	35	51	0	0	0
Volume Right	30	0	0	0	39
cSH	201	855	1700	1700	1700
Volume to Capacity	0.32	0.06	0.38	0.41	0.02
Queue Length 95th (m)	10.6	1.5	0.0	0.0	0.0
Control Delay (s)	31.2	9.5	0.0	0.0	0.0
Lane LOS	D	A			
Approach Delay (s)	31.2	0.7		0.0	
Approach LOS	D				

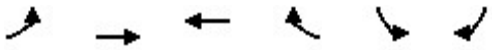
Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	52.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	8	51	27	12	14	5
Future Volume (Veh/h)	8	51	27	12	14	5
Sign Control		Free	Free		Stop	
Grade		-1%	0%		0%	
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74
Hourly flow rate (vph)	11	69	36	16	19	7
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	52				135	44
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	52				135	44
tC, single (s)	4.5				6.6	6.8
tC, 2 stage (s)						
tF (s)	2.5				3.7	3.8
p0 queue free %	99				98	99
cM capacity (veh/h)	1352				800	890

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	80	52	26
Volume Left	11	0	19
Volume Right	0	16	7
cSH	1352	1700	823
Volume to Capacity	0.01	0.03	0.03
Queue Length 95th (m)	0.2	0.0	0.8
Control Delay (s)	1.1	0.0	9.5
Lane LOS	A		A
Approach Delay (s)	1.1	0.0	9.5
Approach LOS			A

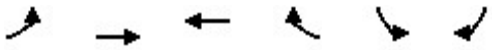
Intersection Summary			
Average Delay		2.1	
Intersection Capacity Utilization		19.5%	ICU Level of Service
Analysis Period (min)		15	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	43	30	1	1	2
Future Volume (Veh/h)	1	43	30	1	1	2
Sign Control		Free	Free		Stop	
Grade		1%	1%		0%	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	1	52	37	1	1	2
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	38				92	38
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	38				92	38
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1585				913	1040

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	53	38	3
Volume Left	1	0	1
Volume Right	0	1	2
cSH	1585	1700	994
Volume to Capacity	0.00	0.02	0.00
Queue Length 95th (m)	0.0	0.0	0.1
Control Delay (s)	0.1	0.0	8.6
Lane LOS	A		A
Approach Delay (s)	0.1	0.0	8.6
Approach LOS			A

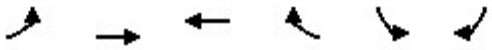
Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	28	24	14	21	19
Future Volume (Veh/h)	10	28	24	14	21	19
Sign Control		Free	Free		Stop	
Grade		1%	1%		0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	13	37	32	19	28	25
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	51				104	42
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	51				104	42
tC, single (s)	5.1				7.4	6.2
tC, 2 stage (s)						
tF (s)	3.1				4.4	3.3
p0 queue free %	99				96	98
cM capacity (veh/h)	1104				695	1035

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	50	51	53
Volume Left	13	0	28
Volume Right	0	19	25
cSH	1104	1700	822
Volume to Capacity	0.01	0.03	0.06
Queue Length 95th (m)	0.3	0.0	1.6
Control Delay (s)	2.2	0.0	9.7
Lane LOS	A		A
Approach Delay (s)	2.2	0.0	9.7
Approach LOS			A

Intersection Summary			
Average Delay		4.1	
Intersection Capacity Utilization		18.7%	ICU Level of Service A
Analysis Period (min)		15	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	50	40	3	9	9
Future Volume (Veh/h)	0	50	40	3	9	9
Sign Control		Free	Free		Stop	
Grade		0%	-1%		0%	
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74
Hourly flow rate (vph)	0	68	54	4	12	12
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						3
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	58				124	56
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	58				124	56
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	99
cM capacity (veh/h)	1559				876	1016

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	68	58	24
Volume Left	0	0	12
Volume Right	0	4	12
cSH	1559	1700	1752
Volume to Capacity	0.00	0.03	0.01
Queue Length 95th (m)	0.0	0.0	0.3
Control Delay (s)	0.0	0.0	8.9
Lane LOS			A
Approach Delay (s)	0.0	0.0	8.9
Approach LOS			A

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	215	12	0	1	0	31	6	410	4	26	324	6
Future Volume (vph)	215	12	0	1	0	31	6	410	4	26	324	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	4.6	3.6	3.6	3.4	3.6	3.3	3.5	3.5	3.5	3.3	4.4
Grade (%)		-2%			-2%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	90.0		20.0	75.0		100.0
Storage Lanes	0		0	0		0	1		1	1		1
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.869				0.850			0.850
Flt Protected		0.955			0.999		0.950			0.950		
Satd. Flow (prot)	0	1930	0	0	1118	0	1246	1824	1597	1342	1818	1759
Flt Permitted		0.955			0.999		0.464			0.320		
Satd. Flow (perm)	0	1930	0	0	1118	0	609	1824	1597	452	1818	1759
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					167				158			238
Link Speed (k/h)		80			70			80			80	
Link Distance (m)		156.2			124.1			299.3			576.7	
Travel Time (s)		7.0			6.4			13.5			26.0	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	2%	67%	0%	0%	0%	47%	40%	3%	0%	33%	1%	0%
Adj. Flow (vph)	247	14	0	1	0	36	7	471	5	30	372	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	261	0	0	37	0	7	471	5	30	372	7
Turn Type	Split	NA		Split	NA		pm+pt	NA	Perm	pm+pt	NA	Free
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases							2		2	6		Free
Detector Phase	4	4		8	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	20.0	20.0	5.0	20.0	
Minimum Split (s)	16.5	16.5		16.5	16.5		9.5	27.3	27.3	9.5	27.3	
Total Split (s)	30.0	30.0		17.0	17.0		10.0	43.0	43.0	10.0	43.0	
Total Split (%)	30.0%	30.0%		17.0%	17.0%		10.0%	43.0%	43.0%	10.0%	43.0%	
Maximum Green (s)	23.5	23.5		10.5	10.5		5.5	35.7	35.7	5.5	35.7	
Yellow Time (s)	5.4	5.4		5.4	5.4		3.0	5.9	5.9	3.0	5.9	
All-Red Time (s)	1.1	1.1		1.1	1.1		1.5	1.4	1.4	1.5	1.4	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.5			6.5		4.5	7.3	7.3	4.5	7.3	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		None	Min	Min	None	Min	
Act Effct Green (s)		16.2			11.3		32.7	27.9	27.9	33.4	29.5	70.7
Actuated g/C Ratio		0.23			0.16		0.46	0.39	0.39	0.47	0.42	1.00
v/c Ratio		0.59			0.12		0.02	0.65	0.01	0.10	0.49	0.00
Control Delay		34.3			0.8		13.3	26.7	0.0	14.0	21.1	0.0
Queue Delay		0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		34.3			0.8		13.3	26.7	0.0	14.0	21.1	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		C			A		B	C	A	B	C	A
Approach Delay		34.3			0.8			26.2			20.2	
Approach LOS		C			A			C			C	
Queue Length 50th (m)		34.1			0.0		0.6	57.7	0.0	2.6	42.5	0.0
Queue Length 95th (m)		70.2			0.0		3.0	114.0	0.0	7.7	86.2	0.0
Internal Link Dist (m)		132.2			100.1			275.3			552.7	
Turn Bay Length (m)							90.0		20.0	75.0		100.0
Base Capacity (vph)		724			326		337	1041	979	292	1062	1759
Starvation Cap Reductn		0			0		0	0	0	0	0	0
Spillback Cap Reductn		0			0		0	0	0	0	0	0
Storage Cap Reductn		0			0		0	0	0	0	0	0
Reduced v/c Ratio		0.36			0.11		0.02	0.45	0.01	0.10	0.35	0.00

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 70.7			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.65			
Intersection Signal Delay: 25.1		Intersection LOS: C	
Intersection Capacity Utilization 52.3%		ICU Level of Service A	
Analysis Period (min) 15			

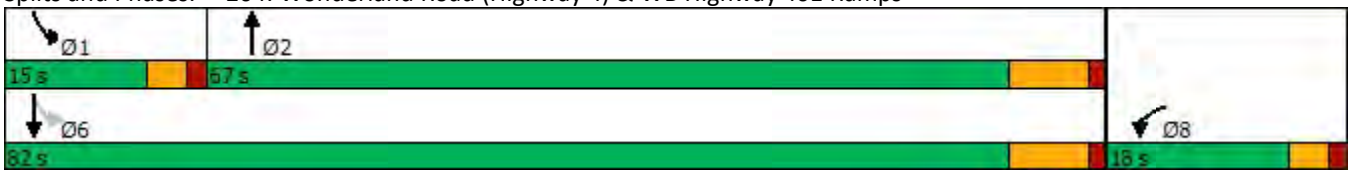
Splits and Phases: 203: Wonderland Road (Highway 4) & EB Highway 401 Ramps/Manning Drive

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	10	10	651	10	92	345
Future Volume (vph)	10	10	651	10	92	345
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	4.4	3.6	3.3	4.5	3.3	3.3
Grade (%)	-1%		0%			0%
Storage Length (m)	0.0	0.0		100.0	95.0	
Storage Lanes	1	0		1	1	
Taper Length (m)	30.0				30.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.932			0.850		
Flt Protected	0.976				0.950	
Satd. Flow (prot)	1891	0	1783	1015	1631	1783
Flt Permitted	0.976				0.240	
Satd. Flow (perm)	1891	0	1783	1015	412	1783
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	11			7		
Link Speed (k/h)	80		80			80
Link Distance (m)	232.7		576.7			303.1
Travel Time (s)	10.5		26.0			13.6
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	0%	3%	75%	7%	3%
Adj. Flow (vph)	11	11	748	11	106	397
Shared Lane Traffic (%)						
Lane Group Flow (vph)	22	0	748	11	106	397
Turn Type	Prot		NA	Free	pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases				Free	6	
Detector Phase	8		2		1	6
Switch Phase						
Minimum Initial (s)	10.0		20.0		5.0	20.0
Minimum Split (s)	15.7		27.4		9.5	27.4
Total Split (s)	18.0		67.0		15.0	82.0
Total Split (%)	18.0%		67.0%		15.0%	82.0%
Maximum Green (s)	13.5		59.7		10.5	74.7
Yellow Time (s)	3.0		5.9		3.0	5.9
All-Red Time (s)	1.5		1.4		1.5	1.4
Lost Time Adjust (s)	0.0		0.0		0.0	0.0
Total Lost Time (s)	4.5		7.3		4.5	7.3
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Recall Mode	None		Min		None	Min
Act Effct Green (s)	11.0		36.7	56.0	46.8	49.7
Actuated g/C Ratio	0.20		0.66	1.00	0.84	0.89
v/c Ratio	0.06		0.64	0.01	0.22	0.25
Control Delay	21.2		12.6	0.0	2.8	2.7
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	21.2		12.6	0.0	2.8	2.7

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
LOS	C		B	A	A	A
Approach Delay	21.2		12.5			2.8
Approach LOS	C		B			A
Queue Length 50th (m)	0.6		32.5	0.0	0.0	0.0
Queue Length 95th (m)	8.2		115.8	0.0	6.2	26.7
Internal Link Dist (m)	208.7		552.7			279.1
Turn Bay Length (m)				100.0	95.0	
Base Capacity (vph)	510		1620	1015	596	1745
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.04		0.46	0.01	0.18	0.23

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 56			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay: 8.8		Intersection LOS: A	
Intersection Capacity Utilization 61.3%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 204: Wonderland Road (Highway 4) & WB Highway 401 Ramps



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	3	35	0	1	23	66	569	8	6	538	13
Future Volume (vph)	95	3	35	0	1	23	66	569	8	6	538	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	4.6	3.6	3.6	3.4	3.6	3.3	3.5	3.5	3.5	3.3	4.4
Grade (%)		-2%			-2%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	90.0		20.0	75.0		100.0
Storage Lanes	0		0	0		0	1		1	1		1
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.964			0.870				0.850			0.850
Flt Protected		0.966					0.950			0.950		
Satd. Flow (prot)	0	1858	0	0	1632	0	1454	1842	1365	1214	1818	1759
Flt Permitted		0.966					0.246			0.306		
Satd. Flow (perm)	0	1858	0	0	1632	0	377	1842	1365	391	1818	1759
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			25				158			238
Link Speed (k/h)		80			70			80			80	
Link Distance (m)		156.2			124.1			299.3			576.7	
Travel Time (s)		7.0			6.4			13.5			26.0	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	7%	0%	7%	0%	0%	0%	20%	2%	17%	47%	1%	0%
Adj. Flow (vph)	102	3	38	0	1	25	71	612	9	6	578	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	143	0	0	26	0	71	612	9	6	578	14
Turn Type	Split	NA			NA		pm+pt	NA	Perm	pm+pt	NA	Free
Protected Phases	4	4			8		5	2		1	6	
Permitted Phases				8			2		2	6		Free
Detector Phase	4	4		8	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	20.0	20.0	5.0	20.0	
Minimum Split (s)	16.5	16.5		16.5	16.5		9.5	27.3	27.3	9.5	27.3	
Total Split (s)	30.0	30.0		17.0	17.0		10.0	43.0	43.0	10.0	43.0	
Total Split (%)	30.0%	30.0%		17.0%	17.0%		10.0%	43.0%	43.0%	10.0%	43.0%	
Maximum Green (s)	23.5	23.5		10.5	10.5		5.5	35.7	35.7	5.5	35.7	
Yellow Time (s)	5.4	5.4		5.4	5.4		3.0	5.9	5.9	3.0	5.9	
All-Red Time (s)	1.1	1.1		1.1	1.1		1.5	1.4	1.4	1.5	1.4	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.5			6.5		4.5	7.3	7.3	4.5	7.3	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		None	Min	Min	None	Min	
Act Effct Green (s)		11.9			10.5		41.9	38.1	38.1	39.0	31.6	71.2
Actuated g/C Ratio		0.17			0.15		0.59	0.54	0.54	0.55	0.44	1.00
v/c Ratio		0.44			0.10		0.23	0.62	0.01	0.02	0.72	0.01
Control Delay		31.1			16.6		10.4	18.9	0.0	9.5	25.6	0.0
Queue Delay		0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		31.1			16.6		10.4	18.9	0.0	9.5	25.6	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		C			B		B	B	A	A	C	A
Approach Delay		31.1			16.6			17.8			24.8	
Approach LOS		C			B			B			C	
Queue Length 50th (m)		13.2			0.1		2.5	36.3	0.0	0.2	52.5	0.0
Queue Length 95th (m)		39.4			7.8		13.1	#165.4	0.0	2.4	#152.7	0.0
Internal Link Dist (m)		132.2			100.1			275.3			552.7	
Turn Bay Length (m)							90.0		20.0	75.0		100.0
Base Capacity (vph)		653			273		308	1012	821	280	955	1759
Starvation Cap Reductn		0			0		0	0	0	0	0	0
Spillback Cap Reductn		0			0		0	0	0	0	0	0
Storage Cap Reductn		0			0		0	0	0	0	0	0
Reduced v/c Ratio		0.22			0.10		0.23	0.60	0.01	0.02	0.61	0.01

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 71.2
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.72
Intersection Signal Delay: 22.0 Intersection LOS: C
Intersection Capacity Utilization 63.6% ICU Level of Service B
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

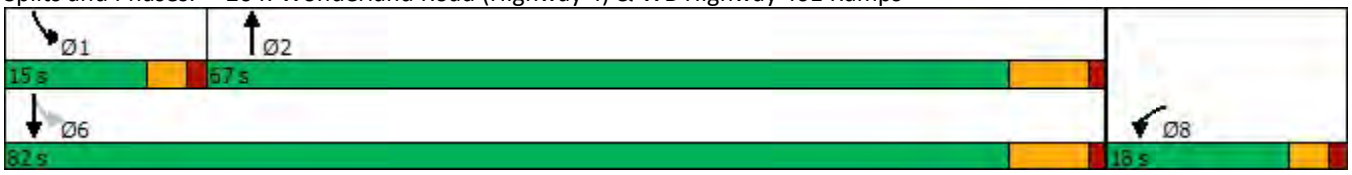
Splits and Phases: 203: Wonderland Road (Highway 4) & EB Highway 401 Ramps/Manning Drive

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	67	31	648	13	183	531
Future Volume (vph)	67	31	648	13	183	531
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	4.4	3.6	3.3	4.5	3.3	3.3
Grade (%)	-1%		0%			0%
Storage Length (m)	0.0	0.0		100.0	95.0	
Storage Lanes	1	0		1	1	
Taper Length (m)	30.0				30.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.958			0.850		
Flt Protected	0.967				0.950	
Satd. Flow (prot)	1736	0	1801	1615	1728	1801
Flt Permitted	0.967				0.217	
Satd. Flow (perm)	1736	0	1801	1615	395	1801
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	19			10		
Link Speed (k/h)	80		80			80
Link Distance (m)	232.7		576.7			303.1
Travel Time (s)	10.5		26.0			13.6
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	10%	13%	2%	10%	1%	2%
Adj. Flow (vph)	70	32	675	14	191	553
Shared Lane Traffic (%)						
Lane Group Flow (vph)	102	0	675	14	191	553
Turn Type	Prot		NA	Free	pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases				Free	6	
Detector Phase	8		2		1	6
Switch Phase						
Minimum Initial (s)	10.0		20.0		5.0	20.0
Minimum Split (s)	15.7		27.4		9.5	27.4
Total Split (s)	18.0		67.0		15.0	82.0
Total Split (%)	18.0%		67.0%		15.0%	82.0%
Maximum Green (s)	13.5		59.7		10.5	74.7
Yellow Time (s)	3.0		5.9		3.0	5.9
All-Red Time (s)	1.5		1.4		1.5	1.4
Lost Time Adjust (s)	0.0		0.0		0.0	0.0
Total Lost Time (s)	4.5		7.3		4.5	7.3
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Recall Mode	None		Min		None	Min
Act Effct Green (s)	11.3		30.4	62.5	46.3	45.8
Actuated g/C Ratio	0.18		0.49	1.00	0.74	0.73
v/c Ratio	0.31		0.77	0.01	0.41	0.42
Control Delay	26.5		21.2	0.0	5.9	6.1
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	26.5		21.2	0.0	5.9	6.1

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
LOS	C		C	A	A	A
Approach Delay	26.5		20.8			6.1
Approach LOS	C		C			A
Queue Length 50th (m)	8.9		67.6	0.0	6.2	28.1
Queue Length 95th (m)	27.9		122.2	0.0	13.3	51.3
Internal Link Dist (m)	208.7		552.7			279.1
Turn Bay Length (m)				100.0	95.0	
Base Capacity (vph)	419		1624	1615	534	1753
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.24		0.42	0.01	0.36	0.32

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 62.5			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 14.0		Intersection LOS: B	
Intersection Capacity Utilization 66.2%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 204: Wonderland Road (Highway 4) & WB Highway 401 Ramps



Appendix E

MTO Traffic Data

Highway	Location Description	Dist. (KM)	Year	Pattern Type	AADT	SADT	SAWDT	WADT	AR
			1994	CR	39,700	44,300	44,600	35,200	0.2
			1995	CR	40,000	44,600	45,200	35,400	0.5
			1996	CR	42,400	47,300	47,900	37,600	0.5
			1997	CR	44,700	49,800	50,500	39,300	0.3
			1998	CR	47,100	52,500	52,900	41,700	0.3
			1999	CR	48,600	54,200	54,600	43,100	0.2
			2000	CR	51,000	56,900	57,300	45,200	0.3
			2001	CR	53,400	59,800	59,800	47,000	0.3
			2002	CR	55,900	62,300	62,800	49,300	0.2
			2003	CR	56,400	62,600	63,200	49,600	0.3
			2004	CR	63,400	70,600	71,300	56,200	0.3
			2005	CR	63,300	70,400	71,100	55,800	0.2
			2006	CR	63,800	70,900	71,500	56,500	0.2
			2007	CR	64,800	72,000	74,200	57,300	0.3
			2008	CR	65,800	72,900	70,500	58,000	0.2
			2009	CR	64,500	71,500	72,100	57,200	0.2
			2010	CR	69,600	77,000	77,700	61,700	0.3
			2011	CR	59,200	65,100	67,400	53,200	N/A
			2012	CR	60,500	67,200	64,700	53,800	N/A
			2013	CR	60,500	67,200	66,600	53,800	N/A
			2014	CR	61,700	72,800	72,200	52,400	N/A
			2015	CR	62,900	74,200	73,600	53,500	N/A
			2016	CR	64,200	75,800	75,100	54,600	N/A
401	HIGHBURY AV IC 189	3.2	1988	IC	36,700	42,500	41,400	32,200	0.8
			1989	IC	39,300	43,600	44,000	35,300	0.6
			1990	IC	40,700	45,100	45,100	36,600	0.8
			1991	IC	42,000	46,200	46,600	38,200	0.1
			1992	IC	42,100	46,700	46,300	38,300	0.2
			1993	IC	43,500	38,700	38,700	38,700	0.3
			1994	IC	45,100	50,300	50,700	40,000	0.5
			1995	IC	46,600	52,000	52,700	41,300	0.5
			1996	IC	48,200	53,700	54,500	42,700	0.7
			1997	IC	49,700	55,400	56,200	43,700	0.5

Highway	Location Description	Dist. (KM)	Year	Pattern Type	AADT	SADT	SAWDT	WADT	AR
			1998	IC	51,300	57,200	57,700	45,500	0.4
			1999	IC	52,700	58,800	59,200	46,700	0.3
			2000	IC	54,200	60,400	60,900	48,000	0.4
			2001	IC	55,700	62,400	62,400	49,000	0.4
			2002	IC	57,200	63,800	64,300	50,400	0.3
			2003	IC	59,000	65,500	66,100	51,900	0.3
			2004	IC	60,600	67,500	68,200	53,700	0.3
			2005	IC	61,000	67,800	68,500	53,800	0.3
			2006	IC	63,200	70,200	70,900	56,000	0.3
			2007	IC	63,600	70,600	72,800	56,200	0.3
			2008	IC	64,600	71,600	69,200	57,000	0.4
			2009	IC	65,600	72,700	73,400	58,200	0.2
			2010	IC	66,500	73,600	74,200	59,000	0.3
			2011	IC	57,700	63,500	65,800	51,900	N/A
			2012	IC	59,000	65,500	63,100	52,500	N/A
			2013	IC	59,000	64,900	64,300	53,100	N/A
			2014	IC	60,200	66,800	66,200	53,600	N/A
			2015	IC	61,400	68,200	67,500	54,600	N/A
			2016	IC	62,600	69,500	68,900	55,700	N/A
401	WELLINGTON RD IC-186	2.6	1988	UC	28,800	33,400	32,500	25,300	0.7
			1989	UC	30,500	33,800	34,100	27,400	0.4
			1990	UC	31,800	35,200	35,200	28,600	0.6
			1991	UC	33,000	36,300	36,600	30,000	0.4
			1992	UC	34,500	38,200	37,900	31,300	0.5
			1993	UC	35,500	31,600	31,600	31,600	0.4
			1994	UC	36,400	40,600	40,900	32,300	0.5
			1995	UC	37,400	41,700	42,300	33,100	0.4
			1996	UC	38,300	42,700	43,300	33,900	0.9
			1997	UC	39,300	43,800	44,400	34,600	0.3
			1998	UC	40,200	44,800	45,200	35,600	0.2
			1999	UC	41,200	45,900	46,300	36,500	0.5
			2000	UC	43,700	48,700	49,100	38,700	0.3
			2001	UC	45,900	51,400	51,400	40,400	0.4

Highway	Location Description	Dist. (KM)	Year	Pattern Type	AADT	SADT	SAWDT	WADT	AR
			2002	UC	47,400	52,800	53,200	41,800	0.3
			2003	UC	48,000	53,300	53,800	42,200	0.2
			2004	UC	51,800	61,900	55,100	45,600	0.2
			2005	UC	51,900	57,700	58,300	45,800	0.2
			2006	UC	52,800	58,700	59,200	46,800	0.3
			2007	UC	53,600	59,500	61,400	47,400	0.4
			2008	UC	54,400	60,300	58,300	48,000	0.3
			2009	UC	55,700	61,700	62,300	49,400	0.2
			2010	UC	55,700	61,700	62,200	49,400	0.3
			2011	UC	54,000	59,400	61,600	48,600	N/A
			2012	UC	54,000	59,900	57,800	48,100	N/A
			2013	UC	52,800	52,800	53,300	50,200	N/A
			2014	UC	54,900	54,900	52,700	52,200	N/A
			2015	UC	57,400	57,400	55,100	54,500	N/A
			2016	UC	58,200	58,200	55,900	55,300	N/A
401	HWY 402 IC-183	6.5	1988	UC	18,000	21,300	20,200	15,400	0.4
			1989	UC	18,600	21,700	20,700	16,300	0.6
			1990	UC	19,100	21,100	21,100	17,100	0.4
			1991	UC	18,500	20,200	20,400	16,700	0.4
			1992	UC	18,700	20,100	20,700	17,200	0.5
			1993	UC	19,100	20,600	21,200	17,700	0.7
			1994	UC	21,000	22,900	23,500	18,900	0.4
			1995	UC	22,900	24,700	25,600	21,100	0.6
			1996	UC	24,000	27,000	27,400	21,600	0.6
			1997	UC	25,000	28,100	28,500	22,500	0.6
			1998	UC	26,000	29,300	29,400	23,400	0.4
			1999	UC	26,100	29,500	29,500	23,500	0.4
			2000	UC	28,000	31,500	31,600	25,200	0.3
			2001	UC	27,700	31,300	31,300	24,900	0.3
			2002	UC	28,400	31,800	32,000	25,600	0.3
			2003	UC	27,800	31,100	31,400	25,000	0.3
			2004	UC	28,300	31,600	31,800	25,500	0.4
			2005	UC	27,900	31,100	31,300	25,100	0.4

Highway	Location Description	Dist. (KM)	Year	Pattern Type	AADT	SADT	SAWDT	WADT	AR
			2006	UC	27,600	30,700	30,900	24,800	0.2
			2007	UC	27,300	30,300	30,800	24,500	0.5
			2008	UC	27,300	30,100	29,700	24,500	0.5
			2009	UC	27,000	29,800	30,100	24,300	0.4
			2010	UC	27,000	29,800	30,000	24,300	0.4
			2011	UC	27,000	29,700	30,000	24,300	N/A
			2012	UC	25,700	28,300	27,800	23,100	N/A
			2013	UC	25,700	28,300	28,000	23,100	N/A
			2014	UC	28,100	28,100	27,000	26,700	N/A
			2015	UC	28,300	28,300	27,200	26,900	N/A
			2016	UC	28,500	28,500	27,300	27,000	N/A
401	HWY 4/COL. TALBOT RD IC-177	12.5	1988	UC	18,400	21,800	20,700	15,700	0.6
			1989	UC	18,400	20,400	20,600	16,500	0.7
			1990	UC	18,500	20,500	20,500	16,600	0.7
			1991	UC	18,500	23,900	22,600	15,800	0.6
			1992	UC	19,600	25,500	24,300	16,700	0.9
			1993	UC	20,800	25,600	25,800	17,700	0.3
			1994	UC	22,000	25,100	24,000	19,400	0.4
			1995	UC	23,000	25,800	24,600	20,500	0.3
			1996	UC	24,000	27,200	25,700	21,600	0.4
			1997	UC	25,000	28,300	26,800	22,500	0.3
			1998	UC	26,700	30,200	28,600	23,800	0.2
			1999	UC	25,400	28,800	27,200	22,600	0.3
			2000	UC	27,500	33,700	32,300	23,300	0.2
			2001	UC	26,400	32,500	30,900	26,400	0.2
			2002	UC	26,900	33,100	31,500	22,800	0.3
			2003	UC	27,000	33,200	31,600	23,000	0.2
			2004	UC	28,000	31,200	31,500	24,800	0.6
			2005	UC	28,200	31,400	31,700	24,900	0.5
			2006	UC	28,300	31,400	31,700	25,100	0.4
			2007	UC	26,400	29,300	30,200	23,300	0.6
			2008	UC	27,800	30,800	29,800	24,500	0.4
			2009	UC	26,200	31,500	30,400	22,200	0.4

Highway	Location Description	Dist. (KM)	Year	Pattern Type	AADT	SADT	SAWDT	WADT	AR
			2010	UC	26,700	32,000	30,900	22,600	0.3
			2011	UC	23,100	27,000	27,300	20,600	N/A
			2012	UC	23,700	28,400	28,000	20,100	N/A
			2013	UC	24,300	24,300	24,500	23,100	N/A
			2014	UC	24,500	24,500	23,500	23,200	N/A
			2015	UC	24,600	24,600	23,600	23,400	N/A
			2016	UC	25,100	25,100	24,100	23,800	N/A
401	UNION RD IC-164-ELGIN RD 20	6.6	1988	CTR	17,800	21,100	20,100	15,300	0.3
			1989	CTR	17,900	19,800	20,000	16,100	0.3
			1990	CTR	18,000	19,900	19,900	16,100	0.3
			1991	CTR	18,700	24,300	23,000	16,000	0.4
			1992	CTR	19,800	25,600	24,400	16,700	0.5
			1993	CTR	20,800	25,500	25,700	17,600	0.5
			1994	CTR	21,900	25,000	23,900	19,300	0.3
			1995	CTR	22,800	25,500	24,400	20,400	0.4
			1996	CTR	23,800	26,900	25,500	21,400	0.4
			1997	CTR	25,300	28,600	27,100	22,800	0.4
			1998	CTR	25,900	29,300	27,700	23,100	0.3
			1999	CTR	25,100	28,400	26,900	22,300	0.3
			2000	CTR	27,000	33,100	31,700	22,900	0.2
			2001	CTR	26,300	32,300	30,800	26,300	0.2
			2002	CTR	26,800	33,000	31,400	22,700	0.4
			2003	CTR	27,100	33,300	31,700	23,000	0.3
			2004	CTR	26,500	30,200	28,800	23,800	0.3
			2005	CTR	28,300	32,100	30,700	25,700	0.4
			2006	CTR	27,000	32,600	29,500	22,900	0.3
			2007	CTR	28,600	34,600	34,500	24,200	0.3
			2008	CTR	27,500	33,300	32,700	23,500	0.2
			2009	CTR	25,200	30,300	29,200	21,300	0.3
			2010	CTR	26,400	31,600	30,500	22,300	0.4
			2011	CTR	23,200	27,100	27,400	20,600	N/A
			2012	CTR	24,200	29,000	28,600	20,600	N/A
			2013	CTR	25,600	30,700	31,400	21,700	N/A

Highway	Location Description	Dist. (KM)	Year	Pattern Type	AADT	SADT	SAWDT	WADT	AR
			2016	C	17,500	19,300	18,800	15,800	N/A
401	DIVERSION TO TUNNEL IC-13	2.3	1988	IC	8,400	9,900	9,400	7,200	0.8
			1989	IC	8,600	9,500	9,600	7,700	1.0
			1990	IC	8,850	9,800	9,800	7,900	0.7
			1991	IC	9,050	9,900	10,000	8,200	0.9
			1992	IC	9,500	10,200	10,500	8,700	1.0
			1993	IC	10,100	10,900	11,200	9,300	1.0
			1994	IC	10,700	13,700	13,100	9,000	1.0
			1995	IC	11,300	14,500	13,900	9,550	0.7
			1996	IC	12,500	16,000	15,400	10,500	0.7
			1997	IC	13,100	14,600	14,800	11,500	0.9
			1998	IC	13,400	14,900	15,100	11,900	1.1
			1999	IC	11,900	13,300	13,400	10,500	1.4
			2000	IC	12,000	13,400	13,500	10,600	1.1
			2001	IC	12,000	13,400	13,400	10,600	0.7
			2002	IC	12,100	13,500	13,600	10,700	0.9
			2003	IC	12,800	14,200	14,300	11,300	4.1
			2004	IC	13,400	14,900	15,100	11,900	2.5
			2005	IC	13,700	15,200	15,400	12,100	1.1
			2006	IC	13,500	15,000	15,100	12,000	0.2
			2007	IC	14,700	16,300	16,800	13,000	0.6
			2008	IC	13,100	14,500	14,000	11,600	0.2
			2009	IC	12,100	13,400	13,500	10,700	0.7
			2010	IC	12,100	13,400	13,500	10,700	0.2
			2011	IC	12,100	13,300	13,800	10,900	N/A
			2012	IC	12,100	13,400	12,900	10,800	N/A
			2013	IC	12,100	13,300	13,200	10,900	N/A
			2014	IC	12,900	14,300	14,200	11,500	N/A
			2015	IC	13,000	14,400	14,300	11,600	N/A
			2016	IC	30,000	33,300	33,000	26,700	N/A
401	401-TUNNEL ROUTE	0.9	2016	UNKN	N/A	N/A	N/A	N/A	N/A
402	HWY 401 IC - LONDON	3.7	1988	IC	11,200	12,300	12,300	10,000	0.7
			1989	IC	12,200	13,400	13,600	10,900	0.4

Highway	Location Description	Dist. (KM)	Year	Pattern Type	AADT	SADT	SAWDT	WADT	AR
			1990	IC	12,900	14,200	14,200	11,500	0.2
			1991	IC	13,500	14,800	14,900	12,200	0.4
			1992	IC	14,100	15,200	15,600	12,900	0.5
			1993	IC	14,700	15,800	16,300	13,600	0.4
			1994	IC	15,300	17,400	16,700	13,500	0.2
			1995	IC	15,900	17,800	17,000	14,200	0.4
			1996	IC	16,500	18,700	17,700	14,900	0.3
			1997	IC	16,700	18,900	17,900	15,000	0.1
			1998	IC	17,600	19,900	18,800	15,700	0.3
			1999	IC	19,000	21,500	20,300	16,900	0.4
			2000	IC	19,800	22,400	21,400	17,700	0.4
			2001	IC	20,700	23,600	22,400	18,400	0.1
			2002	IC	21,500	24,400	23,200	19,400	0.3
			2003	IC	21,800	24,200	24,400	19,200	0.6
			2004	IC	23,600	26,300	26,600	20,900	0.3
			2005	IC	24,500	27,200	27,500	21,600	0.3
			2006	IC	24,900	30,000	27,200	21,100	0.3
			2007	IC	25,700	31,100	31,000	21,800	0.4
			2008	IC	26,400	32,000	31,400	22,600	0.3
			2009	IC	27,400	33,000	31,800	23,200	0.2
			2010	IC	27,400	30,300	30,600	24,300	0.3
			2011	IC	27,900	32,600	32,900	24,800	N/A
			2012	IC	28,000	33,600	33,000	23,800	N/A
			2013	IC	28,700	34,400	35,200	24,400	N/A
			2014	IC	28,300	34,500	34,800	24,100	N/A
			2015	IC	27,900	31,000	30,700	24,800	N/A
			2016	IC	28,500	31,600	31,400	25,400	N/A
402	WONDERLAND RD IC	2.2	1988	IC	11,200	12,300	12,300	10,000	0.2
			1989	IC	12,200	13,400	13,600	10,900	0.7
			1990	IC	12,900	14,200	14,200	11,500	0.3
			1991	IC	13,500	14,800	14,900	12,200	0.3
			1992	IC	14,100	15,200	15,600	12,900	0.5
			1993	IC	14,700	15,800	16,300	13,600	0.1

Highway	Location Description	Dist. (KM)	Year	Pattern Type	AADT	SADT	SAWDT	WADT	AR
			1994	IC	15,300	17,400	16,700	13,500	0.8
			1995	IC	15,900	17,800	17,000	14,200	0.6
			1996	IC	16,500	18,700	17,700	14,900	0.1
			1997	IC	16,700	18,900	17,900	15,000	0.4
			1998	IC	17,600	19,900	18,800	15,700	0.3
			1999	IC	18,400	20,800	19,700	16,400	0.3
			2000	IC	19,000	21,500	20,500	17,000	0.3
			2001	IC	19,700	22,500	21,300	17,500	0.4
			2002	IC	20,300	23,100	21,900	18,300	0.5
			2003	IC	20,700	23,000	23,200	18,200	0.2
			2004	IC	22,000	24,500	24,800	19,500	0.4
			2005	IC	22,300	24,800	25,000	19,700	0.4
			2006	IC	22,900	25,400	25,700	20,300	0.4
			2007	IC	22,000	24,400	25,200	19,400	0.4
			2008	IC	23,200	25,700	24,900	20,500	0.2
			2009	IC	23,900	26,500	26,700	21,200	0.2
			2010	IC	23,900	26,500	26,700	21,200	0.2
			2011	IC	23,900	26,300	27,200	21,500	N/A
			2012	IC	23,900	26,500	25,600	21,300	N/A
			2013	IC	24,100	26,500	26,300	21,700	N/A
			2014	IC	24,200	29,500	29,700	20,500	N/A
			2015	IC	24,200	26,900	26,600	21,500	N/A
			2016	IC	24,700	27,400	27,200	22,000	N/A
402	HWY 4 IC-98 COL. TALBOT RD	12.3	1988	IR	10,900	12,000	12,000	9,700	0.4
			1989	IR	11,900	13,200	13,300	10,700	0.4
			1990	IR	12,900	14,200	14,200	11,500	0.2
			1991	IR	13,500	14,800	14,900	12,200	0.3
			1992	IR	13,800	14,900	15,300	12,600	0.4
			1993	IR	14,300	15,400	15,800	13,200	0.3
			1994	IR	14,800	16,100	16,600	13,300	0.4
			1995	IR	15,000	16,200	16,800	13,800	0.4
			1996	IR	15,200	17,100	17,300	13,700	0.6
			1997	IR	15,900	17,900	18,100	14,300	0.3

Highway	Location Description	Dist. (KM)	Year	Pattern Type	AADT	SADT	SAWDT	WADT	AR
			1998	IR	17,300	19,500	19,500	15,600	0.3
			1999	IR	18,600	21,000	21,000	16,800	0.3
			2000	IR	20,000	22,500	22,600	18,000	0.4
			2001	IR	20,200	22,800	22,800	18,200	0.3
			2002	IR	20,700	23,200	23,400	18,600	0.3
			2003	IR	19,600	22,000	22,100	17,600	0.4
			2004	IR	20,000	22,300	22,500	18,100	0.4
			2005	IR	21,400	23,800	24,000	19,200	0.4
			2006	IR	21,600	24,000	24,200	19,400	0.2
			2007	IR	21,700	24,100	24,400	19,500	0.3
			2008	IR	21,900	24,200	23,800	19,600	0.3
			2009	IR	22,000	24,300	24,500	19,800	0.3
			2010	IR	22,200	24,500	24,700	20,000	0.5
			2011	IR	21,400	23,600	23,800	19,300	N/A
			2012	IR	21,400	23,500	23,100	19,300	N/A
			2013	IR	22,300	24,500	24,300	20,100	N/A
			2014	IR	23,800	29,100	29,300	20,300	N/A
			2015	IR	24,400	29,000	29,000	20,700	N/A
			2016	IR	24,800	29,500	29,500	21,100	N/A
402	MIDDLESEX RD 2-LONGWOODS RD IC 86	3.5	1988	IR	10,100	11,200	11,200	9,000	0.2
			1989	IR	10,700	11,800	11,900	9,600	0.6
			1990	IR	11,500	12,700	12,700	10,300	0.3
			1991	IR	12,800	14,000	14,200	11,600	0.4
			1992	IR	13,400	14,400	14,800	12,300	0.4
			1993	IR	13,900	15,000	15,400	12,900	0.4
			1994	IR	14,500	16,500	15,800	12,800	0.5
			1995	IR	15,700	17,600	16,800	14,000	0.7
			1996	IR	16,300	18,500	17,400	14,700	0.6
			1997	IR	16,800	19,000	18,000	15,100	0.2
			1998	IR	17,300	19,600	18,500	15,400	0.3
			1999	IR	17,500	19,800	18,700	15,600	0.3
			2000	IR	18,000	20,400	19,400	16,100	0.7
			2001	IR	18,400	21,000	19,900	16,400	0.5

S.A.D.T., S.A.W.D.T., W.A.D.T. AND D.H.V. FACTORS FOR USE IN THE Year 2011

	PATTERN TYPE	PCS #	MULTIPLY A.A.D.T. BY			
			SADT	SAWDT	WADT	DHV%
COMMUTER	URBAN COMMUTER	34	1.06	1.16	0.94	10.2
	SUBURBAN COMMUTER	22	1.06	1.17	0.88	10.6
	COMMUTER	90	1.10	1.11	0.90	9.4
INTERMEDIATE	INTERMEDIATE COMMUTER	30	1.11	1.12	0.89	10.0
	COMMUTER RECREATION	37	1.20	1.16	0.85	10.1
	INTERMEDIATE RECREATION	04, 32, 43, 91	1.19	1.09	0.85	12.0
	COM. TOURIST RECREATION	02	1.22	1.17	0.85	9.8
	INTERMEDIATE TOURIST	27	1.25	1.26	0.83	14.2
TOURIST	LOW TOURIST	33, 47, 49	1.34	1.32	0.74	12.7
	TOURIST	69	1.46	1.40	0.64	21.2
	HIGH TOURIST	68	1.50	1.33	0.48	17.2
REC	LOW RECREATION	05, 41, 86	1.50	1.22	0.68	20.9
	RECREATION	36	1.69	1.30	0.55	22.5
	HIGH RECREATION	28	1.51	1.22	0.62	25.2

BASED ON THE PCS DATA FOR THE YEAR 2010 ONLY

UNCLASSIFIED	SIOUX NARROWS	25	1.54	1.42	0.63	19.1
	MANOTICK	58	0.00	0.00	0.00	0.0
	COCHRANE	93	1.13	1.16	0.90	10.2
	NORTH BAY	94	0.00	0.00	0.00	0.0

BASED ON THE PCS DATA FOR THE YEAR 2010 ONLY