Date:
March 1, 2021
Our File No:
7255-01

BY EMAIL

## Eric Hughes

VP of Development
ONNI Group
Suite 200, 1010 Seymour Street
Vancouver, BC
V6B 3M6

Dear Mr. Hughes,
Re: Golden Ears Business Park, Pitt Meadows - REVISED FINAL Access Assessment

### 1.0 BACKGROUND

ONNI is currently seeking development permits for the last two phases i.e. Phase 3 and Phase 4, of its Golden Ears Business Park (GEBP) development in Pitt Meadows. The Phase 3 property is $1,761,795 \mathrm{ft}^{2}$ in area and the Phase 4 property is $1,927,003 \mathrm{ft}^{2}$ in area.

The current development permit application proposes the following:

- Phase 3-19265 Airport Way
o Building 3100-145,518 $\mathrm{ft}^{2}$
o Building 3200-236,272 $\mathrm{ft}^{2}$
o Building 3300-111,581 $\mathrm{ft}^{2}$
- Phase 4-11208 Harris Road
o Building 4000-863,536 ft²
Both GEBP - Phase 3 and Phase 4 front Airport Way (approximate 425 meters of frontage) and Harris Road (approximately 475 meters and 425 meters of frontage respectively. FIGURE 1 illustrates the location of Phase 3 and Phase 4 within the context of the local road network. A site/access plan for GEBP - Phase 3 and Phase 4 is included as APPENDIX A.

FIGURE 1
GEBP - PHASE 3 AND PHASE 4


### 2.0 SCOPE

CTS was tasked with undertaking an access assessment which rationalizes the proposed site/access plan for GEBP - Phase 3 and Phase 4 by ONNI with consideration for:
o Adjacent road network including City of Pitt Meadows truck routes
o On-site building, drive aisle and parking layout;
o Location of parking and loading areas;
o Operational requirements by the tenant of each building/space;
o Type of motorist i.e. visitor, staff/personnel, delivery person, equipment/vehicle operator;
o Type of vehicle i.e. passenger car, pick-up truck, delivery van, light/medium/heavy single unit truck, tractor with semi-trailer;
o Driveway access type;
o Driveway access spacing;
o Driveway access offset from intersections;
o Driveway access location relative to the adjacent property;
o Sight lines;
o Site safety;
o Proposed road geometry;
o Capacity analysis;
o Traffic signal warrant analysis;
o Gap analysis; and
o On-site parking provision.
The site/access plan for GEBP - Phase 3 and Phase 4 is included as APPENDIX A.

### 3.0 ROAD NETWORK

### 3.1 Existing Road Network

The following can be stated about Airport Way and Harris Road adjacent to GEBP Phase 3 and Phase 4:

## Airport Way

- Is an arterial road connecting Golden Ears Way Roundabout in the east with Baynes Road (Pitt Meadows Regional Airport) in the west. Airport Way is also a City of Pitt Meadows Truck Route.
- Two lanes with paved shoulder.
- Bicycle route i.e. bicycle lanes.
- Illuminated at Bonson Road, Harris Road and Baynes Road.
- The posted speed on Airport Way is $60 \mathrm{~km} / \mathrm{h}$.


## Bonson Road

- A collector road connecting Hammond Road in the north with Fraser Way in the south.
- Two lanes with paved shoulder.
- Bicycle route i.e. shared bikeway.
- Illuminated.
- The posted speed on Bonson Road is $50 \mathrm{~km} / \mathrm{h}$.


## Harris Road

- An arterial road connecting Lougheed Highway in the north with Fraser Way in the south.
- Two lanes with paved shoulder from Fraser Way to Hammond Road.
- Bicycle route i.e. bicycle lanes.
- Illuminated at Airport Way and south of Airport Way.
- The posted speed on Harris Road is $50 \mathrm{~km} / \mathrm{h}$.


## Baynes Road

- An arterial road connecting Ford Road in the north with Airport Way in the south. Baynes Road is also a City of Pitt Meadows Truck Route.
- Two lanes with paved shoulder.
- Bicycle route i.e. shared bikeway.
- Illuminated at Airport Way.
- The posted speed on Baynes Road is $50 \mathrm{~km} / \mathrm{h}$.


## Fraser Way

- A collector road connecting Bonson Road in the east with Harris Road in the west.
- Two lanes with open shoulder.
- Bicycle route i.e. shared bikeway.
- Illuminated.
- The posted speed on Fraser Way is $50 \mathrm{~km} / \mathrm{h}$.


## Airport Way at Golden Ears Way Roundabout

- Intersection is controlled by a roundabout.
- There are signed and marked pedestrian crossings on all four approaches to the intersection.
- The intersection is illuminated.


## Airport Way at Bonson Road Intersection

- Intersection is controlled by a roundabout.
- There are signed and marked pedestrian crossings on all four approaches to the intersection.
- The intersection is illuminated.


## Airport Way at Harris Road Intersection

- Intersection is controlled by a roundabout.
- There are signed and marked pedestrian crossings on all four approaches to the intersection.
- The intersection is illuminated.


## Airport Way at Baynes Road Intersection

- Intersection is STOP controlled on Baynes Road.
- The intersection is illuminated.


### 3.1 Proposed Road Network

The following improvements are proposed for Airport Way between Bonson Road and Baynes Road adjacent to GEBP - Phase 3 and Phase 4:

## Airport Way

- Four lanes with paved shoulder.
- Multi-user pathway along the north boulevard connecting the proposed park amenity with a midpoint between Harris Road and Baynes Road.
- Multi-user pathway along the south boulevard connecting Bonson Road with Harris Road
- Street lighting.


## Airport Way at Bonson Road Intersection

- Traffic signal control.
- Pedestrian controlled crossings on all four approaches to the intersection.
- Street lighting.


## Airport Way at Sutton Development/Park Amenity Access

- New full movement access to the proposed park amenity.
- Sutton Development access restricted to right-in/right-out only.
- Pedestrian controlled crossing on the west approach to the intersection.
- Street lighting.

Airport Way at Harris Road Intersection

- Traffic signal control.
- Pedestrian controlled crossings on all four approaches to the intersection.
- Street lighting.


### 4.0 ACCESS ASSESSMENT

CTS undertook the following access assessment with reference to ONNI's site/access plan for GEBP - Phase 3 and Phase 4 included as APPENDIX A.

## Adjacent Road Network

Vehicle routing to/from GEBP - Phase 3 and Phase 4 is intended to be along the adjacent arterial and collector roads i.e. Airport Way, Harris Road and Baynes Road and City of Pitt Meadows Truck Routes i.e. Airport Way and Baynes Road. The City of Pitt Meadows Truck Route Network is included as APPENDIX B.

Given vehicles routing to GEBP - Phase 3 and Phase 4 from the north and west along Harris Road and Baynes Road, and from the east along Airport Way, it is reasonable to expect that the majority those vehicles route from GEBP - Phase 3 and Phase 4 in the direction from which they originated.

Also, it is reasonable to expect that vehicles routing to/from GEBP - Phase 3 and Phase 4 require a pre-requisite number of direct and functional points of access and turns to accommodate ingress to/egress from GEBP - Phase 3 and Phase 4 from/to the adjacent arterial roads and truck routes.

Note - GEBP - Phase 1 and Phase 2 have a total of ten all movement points of access along Baynes Road, Airport Way and Harris Road. The much smaller City of Pitt Meadows Works Yard has two points of access on Harris Road, presumably to accommodate their operational requirements i.e. one point of access for visitors, staff/personnel and deliveries and the other for work related vehicles and equipment.

## GEBP - Phase 3 and Phase 4 Site Layout

The on-site building, drive aisle parking and loading layout have been designed to not only meet the City's land use, parking and loading requirements but also to align the onsite operation of GEBP - Phase 3 and Phase 4 with a pre-requisite number of direct and functional points of access along the adjacent arterial roads, collector roads and truck routes by directly connecting the motorist/vehicle with the associated land use, parking or loading area.

- Visitors and delivery persons require access to the main public entrance for each building. The main public entrance is typically at the front of the building facing the adjacent road and is where the business/company name and unit number/address are displayed.

Operationally, there is typically a public parking area at the front of the building as well as access to that parking to accommodate visitors and delivery persons who might be unfamiliar with the GEBP.

The driveway, drive aisle and parking area are typically designed to accommodate a passenger car, pick-up truck or delivery van.

- Parking for staff/personnel is typically removed from the main public entrance and delivery and loading areas so not to "take away" from parking and/or conflict with their operation.

Staff/personnel parking is proposed for the north half of GEBP - Phase 3 and for the eastern half of GEBP - Phase 4.

The driveway, drive aisle and parking area are typically designed to accommodate a passenger car, pick-up truck or delivery van.

- Delivery persons and operators require access to delivery and loading bays typically at the back of the building facing away from the adjacent street. The vehicle type could be a delivery van, light/medium/heavy single unit truck, tractor with semi-trailer or a piece of equipment such as a fork lift, and the delivery person or operator is typically familiar with their location being a frequent user.

The area associated with delivery/loading bays is typically designated as a work area which might require the use of personal protective equipment (PPE) such as hard hats, visi-vests, protective footwear, etc.

Delivery and loading areas are not intended to be associated with public and/or staff/personnel access given they are typically active works areas, there is a disparity in vehicle size and operation, larger vehicles have a larger blind spot, etc.

The driveway, drive aisle and parking area is typically designed to accommodate a tractor with semi-trailer.

FIGURE 2 illustrates the GEBP - Phase 3 and Phase 4 points of access and their intended function.

FIGURE 2
GEBP - PHASE 3 AND PHASE 4 POINTS OF ACCESS


## Driveway Design

The Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads 2017 provides typical driveway dimensions based on operation i.e. one-way or two-way, and land use i.e. residential, commercial or industrial. Their dimensions can vary dramatically if accommodating a passenger car or a tractor with semi-trailer. Per Table 8.9.1: Typical Driveway Dimensions, the recommended width of a two-way industrial driveway is 9.0 to 15.0 meters.

The two driveways on Airport Way and two driveways on Harris Road intended for the movement of delivery vans, light/medium/heavy single unit trucks, tractors with semitrailer or pieces of equipment, will be designed to accommodate the manoeuvring of a WB20.

Note - In the rare event where two WB20 vehicles wish to egress/ingress the same driveway at the exact same time, one or the other WB20 operators would typically hold their position while the other WB20 operator clears the driveway. To design a driveway crossing where both WB2O vehicles could clear simultaneously would result in an unacceptably wide crossing from an operational and safety perspective. For example, a pedestrian crossing the driveway would be exposed to vehicular traffic for a longer distance and time period than is reasonably expected or designed for.

The two driveways on Airport Way, and three driveways on Harris Road intended for the movement of a passenger car, pick-up truck and delivery van will be designed to accommodate those vehicle types.

In addition to accommodating the intended design vehicle, the driveways on Harris Road south of Airport Way will be intentionally designed to direct egressing vehicles from GEBP - Phase 4, to the north towards Airport Way. This design requirement will be achieved by the installation of regulatory signage i.e. NO LEFT TURN, squaring off of the southerly curb return and installation of a raised median on centerline of Harris Road. See FIGURE 3.

FIGURE 3
GEBP - PHASE 4 HARRIS ROAD EGRESS


## Driveway Frequency

Per the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads 2017 the maximum number of driveways based on frontage is four or more for properties having a frontage greater than 150 meters. As mentioned, the frontage for GEBP - Phase 3 and Phase 4 along both Airport Way and Harris Road exceeds 400 meters. The maximum number of driveways on the GEBP - Phase 3 frontages is two on Airport Way and three on Harris Road. The maximum number of driveways on the GEBP - Phase 4 frontages is two on Airport Way and two on Harris Road.

## Adjacent Driveway Spacing

Per the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads 2017 the minimum driveway spacing along an arterial road or a collector road in an industrial area is 25 meters.

The minimum driveway spacing on the north side of Airport Way exceeds 114 meters for the GEBP - Phase 3 east point of access and Sutton Development/Park Amenity access. The minimum driveway spacing on the south side of Airport Way exceeds 44 meters for the GEBP - Phase 4 east point of access and the Sutton Development/Park Amenity Access.

The minimum driveway spacing on the east side of Harris Road exceeds 43 meters for the GEBP - Phase 3 north point of access and Fieldstone Walk. The minimum driveway spacing on the east side of Harris Road exceeds 25 meters for GEBP - Phase 4 north and south points of access.

FIGURE 4 illustrates the adjacent driveway spacing offsets for GEBP - Phase 3 and Phase 4.

FIGURE 4
ADJACENT DRIVEWAY SPACING OFFSETS


## Opposite Driveway Spacing

Per the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads 2017 driveways should be offset such that left turns in and the left turns out do not overlap.

Of the GEBP - Phase 3 and Phase 4 driveways on Airport Way, two are aligned directly opposite one another and two are offset. The two driveways that are offset, are offset such that the left turns in and the left turns out do not overlap.

Of the GEBP - Phase 2 and GEBP - Phase 3 driveways on Harris Road, three are offset. All of the driveways that are offset, are offset such that the left turns in and the left turns out do not overlap.

The GEBP Phase 4 driveways on Harris Road are right-out only, therefore there is no left turn overlap with GEBP - Phase 1 driveways.

Note - The driveways on the west side of Harris Road just north of Airport Way, belong to the City of Pitt Meadows Works Yard.

## Corner Clearance

Per the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads 2017 the minimum clearance from a driveway to the intersection of an arterial road and a collector road i.e. Airport Way and Harris Road, is 70 meters.

The driveways proposed for GEBP - Phase 3 and Phase 4 along Airport Way and Harris Road exceed 70 meters on all approaches to the intersection of Airport Way and Harris Road.

## Sight Lines

Per the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads 2017, the Stopping Sight Distance (SSD) for a road posted a $60 \mathrm{~km} / \mathrm{h}$ is 85 meters whereas the SSD for a road posted at $50 \mathrm{~km} / \mathrm{h}$ is 65 meters.

Per the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads 2017, the Intersection Sight Distance (ISD) for a truck for a road posted a $60 \mathrm{~km} / \mathrm{h}$ is 195 meters whereas the ISD for a road posted at $50 \mathrm{~km} / \mathrm{h}$ is 160 meters.

The sight distance to/from the proposed driveway crossings along Airport Way and Harris Road exceed the SSD and ISD.

## Proposed Road Geometry

Airport Way is proposed to be widened from two lanes to four lanes by 2024. The benefits to traffic operations along Airport Way include:

- Additional lane capacity and improved levels of service.
- Turns from Airport Way to GEBP - Phase 3 and Phase 4 can be made without impeding through traffic.
- Turn gap availability from GEBP - Phase 3 and Phase 4 to Airport Way is approximately doubled.

The intersection of Airport Way and Harris Road is proposed to be signalized by 2024. The benefits to traffic operations and safety include:

- Additional lane capacity and improved levels of service.
- Improved left turn radius through the intersection on all approaches.
- Signalized pedestrian and bicycle movements on all approaches.


### 5.0 PARK AMENITY ACCESS ASSESSMENT

A park dedication is proposed for the northeast quadrant of GEBP - Phase 3. The park dedication also abuts the Pitt Meadows Arena Complex and Athletic Park. The Pitt Meadows Arena Complex and Athletic Park are accessed from Bonson Road.

Access to the park is proposed on Airport Way opposite the Sutton Development. A preliminary design of the proposed point of access is included as APPENDIX C. It is expected that the proposed driveway and parking area would operate at their peak, evenings and weekends i.e. outside of the peak operational periods for GEBP - Phase 3 and Phase 4. No operational conflict is expected.

## Adjacent Driveway Spacing

Per the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads 2017 the minimum driveway spacing along an arterial road in an industrial area is 25 meters.

The driveway spacing on the north side of Airport Way exceeds 114 meters for the GEBP - Phase 3 east point of access and Sutton Development/Park Amenity Access.

## Opposite Driveway Spacing

Per the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads 2017 driveways should be offset such that left turns in and left turns out do not overlap.

The GEBP - Phase 4 east driveway and Park Amenity Access are offset. The two driveways are spaced such that left turns in and left turns out do not overlap. The driveway spacing on Airport Way between the GEBP - Phase 4 east driveway and the proposed Park Amenity Access, exceeds 50 meters.

## Sight Lines

Per the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads 2017, the Stopping Sight Distance (SSD) for a road posted a $60 \mathrm{~km} / \mathrm{h}$ is 85 meters whereas the SSD for a road posted at $50 \mathrm{~km} / \mathrm{h}$ is 65 meters.

Per the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads 2017, the Intersection Sight Distance (ISD) for a truck for a road posted a $60 \mathrm{~km} / \mathrm{h}$ is 195 meters whereas the ISD for a road posted at $50 \mathrm{~km} / \mathrm{h}$ is 160 meters.

The sight distance to/from the proposed park amenity access along Airport Way exceeds the SSD and ISD.

### 6.0 CITY OF PITT MEADOWS WORKS YARD ACCESS ASSESSMENT

At the request of the City of Pitt Meadows, CTS assessed the driveway points of access to/from the City of Pitt Meadows works yard, with reference to FIGURE 5.

FIGURE 5
CITY OF PITT MEADOWS WORKS YARD


Currently there are driveway two points of access along Harris Road, servicing the works yard. The north driveway point of access is full movement whereas the south driveway point of access is right-in/right-out/left-in. Left turns out are prohibited at the south point of access by signage. Also, the north driveway point of access is primarily for staff, deliveries and visitors whereas the south driveway point of access is primarily for the movement of work related vehicles and equipment and larger deliveries.

In assessing the design and operation of both driveway points of access, CTS applied the corner clearance criterion. Per the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads 2017 the minimum clearance from a
driveway to the intersection of two arterial roads i.e. Airport Way and Harris Road, is 70 meters.

The north driveway point of access is offset approximately 79 meters from Airport Way and the south driveway point of access is offset approximately 21 meters from Airport Way. The south driveway point of access does not meet the TAC corner clearance criterion. Left-in turns and left-out turns would conflict with the operation of the intersection of Airport Way and Harris Road e.g. left-in turns and left-out turns would track through the southbound left turn storage lane. The south driveway point of access would operate best as right-in/right-out.

### 7.0 TRIP GENERATION

The number of vehicle trips expected to be generated by GEBP - Phase 3 and Phase 4 for 2024 is summarized by TABLE 1. The ITE Trip Generation Manual $10^{\text {th }}$ Edition trip generation rates for an Industrial Park, were referenced.

TABLE 1
GEBP - PHASE 3 and PHASE 4
YEAR 2024

| Land Use |  | Peak Hour | Trip Generation Variable | Scope of Development | Vehicle Trip Generation Rate | Trip Rate Source | Directional Split |  | Peak Hour Volumes (vph) |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | \% in |  |  |  |  | \% out | in | out | total |
| Industrial Park Phase 3 | Building 3100 |  | Weekday <br> Morning | 1,000 Sq. Ft. GFA | 145.5 | 0.40 | ITE 10th Edition Code 130 | 81\% | 19\% | 48 | 11 | 59 |
|  |  | Weekday <br> Afternoon | 145.5 |  | 0.40 | 21\% |  | 79\% | 12 | 47 | 59 |
| Industrial Park Phase 3 | Other Buildings | Weekday <br> Morning | 1,000 Sq. Ft. GFA | 347.9 | 0.40 | ITE 10th Edition Code 130 | 81\% | 19\% | 113 | 27 | 140 |
|  |  | Weekday <br> Afternoon |  | 347.9 | 0.40 |  | 21\% | 79\% | 29 | 111 | 140 |
| Industrial Park Phase 4 | Phase 4 <br> Buildings | Weekday Morning | 1,000 Sq. Ft. GFA | 863.5 | 0.40 | ITE 10th Edition Code 130 | 81\% | 19\% | 280 | 66 | 346 |
|  |  | Weekday Afternoon |  | 863.5 | 0.40 |  | 21\% | 79\% | 73 | 273 | 346 |
| TOTAL WEEKDAY MORNING PEAK HOUR |  |  |  |  |  |  |  |  | 441 | 104 | 545 |
| TOTAL WEEKDAY AFTERNOON PEAK HOUR |  |  |  |  |  |  |  |  | 114 | 431 | 545 |

For the year 2024, GEBP - Phase 3 and Phase 4 are expected to generate 545 (441 inbound and 104 outbound) vehicle trips in the morning peak hour and 545 (114 inbound and 431 outbound) vehicle trips in the afternoon peak hour.

FIGURE 6 and FIGURE 7 illustrate the site generated traffic for the year 2024 during the weekday morning and afternoon peak hours.

Note - The site generated traffic volume does not change from the 2024 analysis to the 2035 analysis for the weekday morning and afternoon peak hours i.e. remains at 545 vehicles per hour for both analyses.

FIGURE 6
2024 WEEKDAY MORNING PEAK HOUR SITE GENERATED TRAFFIC VOLUMES


FIGURE 7
2024 WEEKDAY AFTERNOON PEAK HOUR SITE GENERATED TRAFFIC VOLUMES


### 8.0 CAPACITY ANALYSIS

### 8.1 Assumptions

In addition to the Access Assessment undertaken in Section 4.0, capacity analysis was performed for each of the GEBP - Phase 3 and Phase 4 points of access on Airport Way and Harris Road as well as for the intersection of Airport Way and Harris Road, to determine the overall intersection and individual movement Level of Service (LOS) that is provided to motorists. The LOS for intersections and movements is defined in terms of delay (seconds per vehicle) which is a measure of driver discomfort and frustration, fuel consumption and lost travel time.

An intersection or movement LOS can range from "A" (Excellent) to "E" (Capacity). A LOS of " F " indicates that an intersection or movement is failing because the intersection or movement is over capacity and delays are excessive. A LOS of "D" or better is considered acceptable by many public agencies for overall intersection, through and right turn movements and a LOS of " $E$ " or better is considered acceptable for left turn movements, at signalized intersections.

Synchro (Version 10.0) was used to analyze the intersection and movement level of service for signalized intersections. Highway Capacity Software (HCS) was used to analyze the intersection and movement Level of Service for unsignalized intersections. SIDRA INTERSECTION 6.1 was used for the roundabout intersection analysis.

With respect to the point of access and intersection analyses, the following assumptions were made:

- Saturation flow rate $\rightarrow$ 1,900 passenger cars/hour of green/lane (pcphgpl).
- Heavy truck i.e. 3+ axles, percentage $\rightarrow 15 \%$ for all truck point of access movements and on Airport Way and Harris Road. All other points of access were assumed to be zero heavy trucks.
- Peak Hour Factor (PHF) $\rightarrow 0.93$ for the weekday morning peak hour and 0.86 for the weekday PM peak hour which were the average PHF's from the traffic turning movement counts.
- All points of access were assumed to be all movement i.e. right-in, right-out, leftin and left-out except:
o GEBP Phase 4 Airport Way West Ingress - right-in and left-in only.
o GEBP Phase 4 Harris Road Truck Egress - right-out only.
o GEBP Phase 4 Harris Road Passenger Car Egress - right-out only.
- All egresses were assumed to be shared left turn/right turn movements except:
o GEBP Phase 4 Harris Road Truck Egress - right-out only.
o GEBP Phase 4 Harris Road Passenger Car Egress - right-out only.
- CTS based the capacity analysis on background traffic data collected by CTS on February 28, 2017. Copies of the turning movement summary count data are included as APPENDIX D. The weekday morning peak hour was 0745 to 0845. The weekday afternoon peak hour was 1615 to 1715.
- Per direction received from the City of Pitt Meadows, CTS studied the 2024 and 2035 horizon years with GEBP - Phase 3 and Phase 4.
- The 2017 background data was grown to the 2024 and 2035 study years at $2 \%$ per annum simple straight line, consistent with McElhanney's South Bonson Traffic Study - Final Report, April 2016.
- Vehicle trips generated by the Sutton Development residential community were included as background traffic in the years 2024 and 2035. The Sutton Development generated vehicle trips are summarized by TABLE 2.

TABLE 2
SUTTON DEVELOPMENT VEHICLE TRIP GENERATION

| Land Use |  | Peak Hour | Trip Generation Variable | Scope of Development | Vehicle Trip Generation Rate | Trip Rate Source | Directional Split |  | Peak Hour Volumes (vph) |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | \% in |  |  |  |  | \% out | in | out | total |
| Residential | Townhouse |  | Weekday Morning | Dwelling Units | 220 | 0.36 | ITE 10th Edition Code 221 | 26\% | 74\% | 21 | 59 | 80 |
|  |  | Weekday Afternoon | Dwelling Units | 220 | 0.44 | ITE 10th Edition Code 221 | 61\% | 39\% | 59 | 38 | 97 |
| TOTAL WEEKDAY MORNING PEAK HOUR |  |  |  |  |  |  |  |  | 21 | 59 | 80 |
| TOTAL WEEKDAY AFTERNOON PEAK HOUR |  |  |  |  |  |  |  |  | 59 | 38 | 97 |

The vehicle trip generation data is based on that assumed by the City of Pitt Meadows in their Staff Report to Council - Temporary Commercial Use Permit Application for 19451 Sutton Avenue, April 2019.

- Vehicle trips generated by the proposed park amenity were assumed to be 20 vehicle trips inbound and 20 vehicle trips outbound for both the morning and afternoon peak hours.
- Vehicle trips generated by the proposed elementary school on the southwest corner of Airport Way and Bonson Road were included as background traffic in the year 2035. The school generated vehicle trips are summarized by TABLE 3.

TABLE 3
SCHOOL VEHICLE TRIP GENERATION

| Land Use |  | Peak Hour | Trip Generation Variable | Scope of Development | Vehicle Trip Generation Rate | Trip Rate Source | Directional Split |  | Peak Hour Volumes (vph) |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | \% in |  |  |  |  | \% out | in | out | total |
| School | Elementary |  | Weekday Morning | 1,000 Square Feet GFA | 15 | 6.97 | ITE 10th Edition Code 520 | 55\% | 45\% | 58 | 47 | 105 |
|  |  | Weekday Afternoon | 1,000 Square Feet GFA | 15 | 1.37 | 45\% |  | 55\% | 9 | 12 | 21 |
| TOTAL WEEKDAY MORNING PEAK HOUR |  |  |  |  |  |  |  |  | 58 | 47 | 105 |
| TOTAL WEEKDAY AFTERNOON PEAK HOUR |  |  |  |  |  |  |  |  | 9 | 12 | 21 |

The vehicle trip generation data is based on that assumed by McElhanney in their South Bonson Traffic Study - Final Report, April 2016.

- Vehicle trips generated by the GEBP Phase 1 and Phase 2 were included as background traffic. The vehicle trip generation data is based on that assumed by MMM in their Golden Ears Business Park - Phase 3 Transportation Impact Study, April 2015.
- Trip distribution parameters for distributing GEBP - Phase 3 and Phase 4 generated vehicle trips to/from the site are summarized by TABLE 4. The traffic distribution is based on that assumed by McElhanney in their South Bonson Traffic Study, April 2016.

Note - The distribution percentage for North - Harris Road was changed from $30 \%$ to $25 \%$ and the distribution percentage for West - Airport Way was changed from 0\% to 5\%.

TABLE 4
TRIP DISTRBUTION PERCENTAGES

| FROM / TO | WEEKDAY MORNING PEAK HOUR |  | WEEKDAY AFTERNOON PEAK HOUR |  |
| :---: | :---: | :---: | :---: | :---: |
|  | INBOUND | OUTBOUND | INBOUND | OUTBOUND |
| North - Bonson Rd | $15.0 \%$ | $15.0 \%$ | $15.0 \%$ | $15.0 \%$ |
| North - Harris Rd | $25.0 \%$ | $25.0 \%$ | $25.0 \%$ | $25.0 \%$ |
| East Airport Way | $50.0 \%$ | $50.0 \%$ | $50.0 \%$ | $50.0 \%$ |
| South - Harris Rd | $5.0 \%$ | $5.0 \%$ | $5.0 \%$ | $5.0 \%$ |
| West - Airport Way | $5.0 \%$ | $5.0 \%$ | $5.0 \%$ | $5.0 \%$ |
| TOTAL | $\mathbf{1 0 0 . 0 \%}$ | $\mathbf{1 0 0 . 0} \%$ | $\mathbf{1 0 0 . 0 \%}$ | $\mathbf{1 0 0 . 0 \%}$ |

- CTS analyzed Airport Way as a four-lane cross-section for both the 2024 and 2035 scenarios.
- CTS analyzed the intersections of Airport Way and Bonson Road and Airport Way and Harris Road as traffic signal controlled for both the 2024 and 2035 scenarios. For the traffic signal controlled intersection, CTS assumed protected/permissive phasing on all approaches and optimized the signal timing.
- CTS analyzed the intersection of Airport Way and the Sutton Development/Park Amenity access and Airport Way and Baynes Road as STOP controlled for both the 2024 and 2035 scenarios.
- CTS analyzed the intersection of Airport Way and Golden Ears Way Roundabout as roundabout control with no geometric or laning improvements. The link volumes established for the east approach to the intersection of Airport Way and Bonson Road for 2024 were used as basis for the west approach to the intersection of Airport Way and Golden Ears Way Roundabout. The link volumes were distributed to the east and south approaches to the intersection of Airport Way and Golden Ears Way Roundabout 50\%/50\%.
- The preliminary geometry and laning assumed for Airport Way are illustrated by the preliminary design included as APPENDIX C.


### 8.2 Capacity Analysis

With consideration for the preceding assumptions, capacity analysis was performed for each of the GEBP - Phase 3 and Phase 4 points of access on Airport Way and Harris Road as well as for the intersections of:

- Airport Way and Bonson Road;
- Airport Way and Harris Road;
- Airport Way and Baynes Road;
- Airport Way and Sutton Development/Park Amenity access; and
- Airport Way and Golden Ears Way Roundabout.

TABLE 5 summarizes and compares the delay in seconds and the $95^{\text {th }}$ percentile queue for all GEBP - Phase 3 and Phase 4 unsignalized points of access on Harris Road (two lane cross-section) and Fraser Way (two lane cross-section) for the 2024 and 2035 morning and afternoon peak hours.

TABLE 6 summarizes and compares the delay in seconds and the $95^{\text {th }}$ percentile queue for all GEBP - Phase 3 and Phase 4 unsignalized points of access on Airport Way (four lane cross-section) for the 2024 and 2035 morning and afternoon peak hours.

TABLE 7 summarizes and compares the delay in seconds and the $95^{\text {th }}$ percentile queue for the unsignalized intersection of Airport Way (four lane cross-section) and the Sutton

Development/Park Amenity access for the 2024 and 2035 morning and afternoon peak hours.

TABLE 8 summarizes and compares the delay in seconds and the $95^{\text {th }}$ percentile queue for the unsignalized intersection of Airport Way and Baynes Road for the 2024 and 2035 morning and afternoon peak hours.

TABLE 9 summarizes and compares the main performance parameters of the capacity analysis for the signalized intersection of Airport Way (four lane cross-section) at Bonson Road and Airport Way (four lane cross-section) at Harris Road for the 2024 and 2035 morning and afternoon peak hours.

The capacity analysis summary sheets are included as APPENDIX E.

TABLE 5
UNSIGNALIZED INTERSECTION CAPACITY ANALYSIS SUMMARY HARRIS ROAD (TWO LANE CROSS-SECTION) AND PHASE 3 POINTS OF ACCESS

| Intersection | Time of Day | Scenario | Performance Measure | Eastbound |  |  | Westbound |  |  | Northbound |  |  | Southbound |  |  | LOS | Notes |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |  |  |
| Harris Road (N/S) \& North Access Phase 3 (ENW) | Weekday Morning Peak Hour | $\begin{aligned} & 2024 \text { Base + Site } \\ & \text { (Phase } 3 \text { \& 4) } \end{aligned}$ | Volumes |  |  |  | 8 |  | 3 |  | 375 | 36 | 12 | 534 |  | A | OK |
|  |  |  | Delay |  |  |  | 17.1 |  |  |  | 0.0 |  | 8.2 |  |  |  |  |
|  |  |  | 95\% Queue (veh) |  |  |  | 0.1 |  |  |  | 0.0 |  | 0.0 |  |  |  |  |
|  |  | $\begin{aligned} & 2035 \text { Base + Site } \\ & \text { (Phase } 3 \text { \& 4) } \end{aligned}$ | Volumes |  |  |  | 8 |  | 3 |  | 452 | 36 | 12 | 632 |  | A | OK |
|  |  |  | Delay |  |  |  | 20.6 |  |  |  | 0.0 |  | 8.5 |  |  |  |  |
|  |  |  | 95\% Queue (veh) |  |  |  | 0.2 |  |  |  | 0.0 |  | 0.0 |  |  |  |  |
|  | Weekday Afternoon Peak Hour | $\begin{aligned} & 2024 \text { Base + Site } \\ & \text { (Phase 3 \& 4) } \end{aligned}$ | Volumes |  |  |  | 35 |  | 12 |  | 623 | 9 | 3 | 423 |  | A | WB Movements are approaching capacity |
|  |  |  | Delay |  |  |  | 25.6 |  |  |  | 0.0 |  | 9.1 |  |  |  |  |
|  |  |  | 95\% Queue (veh) |  |  |  | 0.9 |  |  |  | 0.0 |  | 0.0 |  |  |  |  |
|  |  | $\begin{aligned} & 2035 \text { Base + Site } \\ & \text { (Phase } 3 \text { \& 4) } \end{aligned}$ | Volumes |  |  |  | 35 |  | 12 |  | 726 | 9 | 3 | 500 |  | A | WB Movements are approaching capacity |
|  |  |  | Delay |  |  |  | 35.0 |  |  |  | 0.0 |  | 9.6 |  |  |  |  |
|  |  |  | 95\% Queue (veh) |  |  |  | 1.3 |  |  |  | 0.0 |  | 0.0 |  |  |  |  |
| Harris Road (N/S) <br> \& Middle Access Phase 3 (EN) | Weekday Morning Peak Hour | $\begin{aligned} & 2024 \text { Base + Site } \\ & \text { (Phase 3 \& 4) } \end{aligned}$ | Volumes |  |  |  | 3 |  | 1 |  | 410 | 13 | 4 | 538 |  | A | OK |
|  |  |  | Delay |  |  |  | 17.1 |  |  |  | 0.0 |  | 8.2 |  |  |  |  |
|  |  |  | 95\% Queue (veh) |  |  |  | 0.0 |  |  |  | 0.0 |  | 0.0 |  |  |  |  |
|  |  | $\begin{aligned} & 2035 \text { Base + Site } \\ & \text { (Phase 3 \& 4) } \end{aligned}$ | Volumes |  |  |  | 3 |  | 1 |  | 487 | 13 | 4 | 636 |  | A | OK |
|  |  |  | Delay |  |  |  | 20.5 |  |  |  | 0.0 |  | 8.5 |  |  |  |  |
|  |  |  | 95\% Queue (veh) |  |  |  | 0.1 |  |  |  | 0.0 |  | 0.0 |  |  |  |  |
|  | Weekday Afternoon Peak Hour | $\begin{aligned} & 2024 \text { Base + Site } \\ & \text { (Phase 3 \& 4) } \end{aligned}$ | Volumes |  |  |  | 12 |  | 4 |  | 628 | 3 | 1 | 457 |  | A | OK |
|  |  |  | Delay |  |  |  | 23.0 |  |  |  | 0.0 |  | 9.1 |  |  |  |  |
|  |  |  | 95\% Queue (veh) |  |  |  | 0.3 |  |  |  | 0.0 |  | 0.0 |  |  |  |  |
|  |  | $\begin{aligned} & 2035 \text { Base + Site } \\ & \text { (Phase } 3 \text { \& 4) } \end{aligned}$ | Volumes |  |  |  | 12 |  | 4 |  | 731 | 3 | 1 | 534 |  | A | WB Movements are approaching capacity |
|  |  |  | Delay |  |  |  | 29.4 |  |  |  | 0.0 |  | 9.5 |  |  |  |  |
|  |  |  | 95\% Queue (veh) |  |  |  | 0.4 |  |  |  | 0.0 |  | 0.0 |  |  |  |  |
| Harris Road (N/S)\& South Access -Phase 3 (EM) | Weekday <br> Morning <br> Peak Hour | $\begin{aligned} & 2024 \text { Base + Site } \\ & \text { (Phase 3 \& 4) } \end{aligned}$ | Volumes |  |  |  | 6 |  | 2 |  | 421 | 24 | 8 | 533 |  | A | OK |
|  |  |  | Delay |  |  |  | 18.6 |  |  |  | 0.0 |  | 8.6 |  |  |  |  |
|  |  |  | 95\% Queue (veh) |  |  |  | 0.1 |  |  |  | 0.0 |  | 0.0 |  |  |  |  |
|  |  | $\begin{aligned} & 2035 \text { Base + Site } \\ & \text { (Phase } 3 \text { \& 4) } \end{aligned}$ | Volumes |  |  |  | 6 |  | 2 |  | 498 | 24 | 8 | 631 |  | A |  |
|  |  |  | Delay |  |  |  | 22.6 |  |  |  | 0.0 |  | 8.8 |  |  |  | OK |
|  |  |  | 95\% Queue (veh) |  |  |  | 0.1 |  |  |  | 0.0 |  | 0.0 |  |  |  |  |
|  | Weekday Afternoon Peak Hour | $\begin{aligned} & 2024 \text { Base + Site } \\ & \text { (Phase } 3 \text { \& 4) } \end{aligned}$ | Volumes |  |  |  | 24 |  | 8 |  | 623 | 7 | 2 | 467 |  | A | WB Movements are approaching capacity |
|  |  |  | Delay |  |  |  | 27.0 |  |  |  | 0.0 |  | 9.4 |  |  |  |  |
|  |  |  | 95\% Queue (veh) |  |  |  | 0.7 |  |  |  | 0.0 |  | 0.0 |  |  |  |  |
|  |  | $\begin{aligned} & 2035 \text { Base + Site } \\ & \text { (Phase } 3 \text { \& 4) } \end{aligned}$ | Volumes |  |  |  | 24 |  | 8 |  | 726 | 7 | 2 | 544 |  | A | WB Movements are approaching capacity |
|  |  |  | Delay |  |  |  | 36.4 |  |  |  | 0.0 |  | 9.8 |  |  |  |  |
|  |  |  | 95\% Queue (veh) |  |  |  | 0.9 |  |  |  | 0.0 |  | 0.0 |  |  |  |  |

Delay = Average Delay (seconds/vehicle)
Intersection approaching capacity (LOS 'D' or 'E'); ; or medium approach delays ( 25 sec to $<50 \mathrm{sec}$ )
Intersection equals or exceeds capacity (LOS ' $F$ '); or high approach delays (=> 50sec)
$95 \%$ Queue $=$ UNSIGNALIZED QUEUE IS PER VEHICLE

TABLE 5 CONTINUED
UNSIGNALIZED INTERSECTION CAPACITY ANALYSIS SUMMARY HARRIS ROAD (TWO LANE CROSS-SECTION) AND PHASE 4 POINTS OF ACCESS

| Intersection | Time of Day | Scenario | Performance Measure | Eastbound |  |  | Westbound |  |  | Northbound |  |  | Southbound |  |  | LOS | Notes |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |  |  |
| Harris Road (N/S) \& Phase 4 Outbound Truck Access (EM) | Weekday Morning Peak Hour | $\begin{aligned} & 2024 \text { Base + Site } \\ & \text { (Phase 3 \& 4) } \end{aligned}$ | Volumes |  |  |  |  |  | 13 |  | 205 |  |  | 146 |  | A | OK |
|  |  |  | Delay |  |  |  |  |  | 10.9 |  | 0.0 |  |  | 0.0 |  |  |  |
|  |  |  | 95\% Queue (veh) |  |  |  |  |  | 0.1 |  | 0.0 |  |  | 0.0 |  |  |  |
|  |  | $\begin{aligned} & 2035 \text { Base + Site } \\ & \text { (Phase } 3 \& 4 \text { ) } \end{aligned}$ | Volumes |  |  |  |  |  | 13 |  | 234 |  |  | 174 |  | A | OK |
|  |  |  | Delay |  |  |  |  |  | 11.2 |  | 0.0 |  |  | 0.0 |  |  |  |
|  |  |  | 95\% Queue (veh) |  |  |  |  |  | 0.1 |  | 0.0 |  |  | 0.0 |  |  |  |
|  | Weekday Afternoon Peak Hour | $\begin{aligned} & 2024 \text { Base + Site } \\ & (\text { Phase } 3 \& 4) \end{aligned}$ | Volumes |  |  |  |  |  | 55 |  | 261 |  |  | 136 |  | A | OK |
|  |  |  | - |  |  |  |  |  | 12.3 |  | 0.0 |  |  | 0.0 |  |  |  |
|  |  |  | 95\% Queue (veh) |  |  |  |  |  | 0.4 |  | 0.0 |  |  | 0.0 |  |  |  |
|  |  | $\begin{aligned} & 2035 \text { Base + Site } \\ & (\text { Phase } 3 \& 4) \end{aligned}$ | Volumes |  |  |  |  |  | 55 |  | 293 |  |  | 163 |  | A | OK |
|  |  |  | Delay |  |  |  |  |  | 12.8 |  | 0.0 |  |  | 0.0 |  |  |  |
|  |  |  | 95\% Queue (veh) |  |  |  |  |  | 0.4 |  | 0.0 |  |  | 0.0 |  |  |  |
| Harris Road (N/S) <br> \& Phase 4 Outbound Car Access (EM) | Weekday Morning Peak Hour | $\begin{aligned} & 2024 \text { Base + Site } \\ & \text { (Phase } 3 \text { \& 4) } \end{aligned}$ | Volumes |  |  |  |  |  | 21 |  | 184 |  |  | 146 |  | A | OK |
|  |  |  | Delay |  |  |  |  |  | 9.5 |  | 0.0 |  |  | 0.0 |  |  |  |
|  |  |  | 95\% Queue (veh) |  |  |  |  |  | 0.1 |  | 0.0 |  |  | 0.0 |  |  |  |
|  |  | $\begin{aligned} & 2035 \text { Base + Site } \\ & \text { (Phase } 3 \& 4 \text { ) } \end{aligned}$ | Volumes |  |  |  |  |  | 21 |  | 213 |  |  | 174 |  | A | OK |
|  |  |  | Delay |  |  |  |  |  | 9.5 |  | 0.0 |  |  | 0.0 |  |  |  |
|  |  |  | 95\% Queue (veh) |  |  |  |  |  | 0.1 |  | 0.0 |  |  | 0.0 |  |  |  |
|  | Weekday Afternoon Peak Hour | $\begin{aligned} & 2024 \text { Base + Site } \\ & \text { (Phase 3 \& 4) } \end{aligned}$ | Volumes |  |  |  |  |  | 87 |  | 174 |  |  | 136 |  | A | OK |
|  |  |  | Delay |  |  |  |  |  | 9.8 |  | 0.0 |  |  | 0.0 |  |  |  |
|  |  |  | 95\% Queue (veh) |  |  |  |  |  | 0.4 |  | 0.0 |  |  | 0.0 |  |  |  |
|  |  | $\begin{aligned} & 2035 \text { Base + Site } \\ & (\text { Phase } 3 \text { \& 4) } \end{aligned}$ | Volumes |  |  |  |  |  | 87 |  | 206 |  |  | 163 |  | A | OK |
|  |  |  | Delay |  |  |  |  |  | 10.1 |  | 0.0 |  |  | 0.0 |  |  |  |
|  |  |  | 95\% Queue (veh) |  |  |  |  |  | 0.4 |  | 0.0 |  |  | 0.0 |  |  |  |

Delay = Average Delay (seconds/vehicle)
Intersection approaching capacity (LOS 'D' or 'E'); ; or medium approach delays ( 25 sec to $<50 \mathrm{sec}$ )

TABLE 6
UNSIGNALIZED INTERSECTION CAPACITY ANALYSIS SUMMARY AIRPORT WAY (FOUR LANE CROSS-SECTION) AND POINTSOF ACCESS


Delay $=$ Average Delay (seconds/vehicle)
Intersection approaching capacity (LOS 'D' or 'E'); ; or medium approach delays ( 25 sec to $<50 \mathrm{sec}$ )
$95 \%$ Queue $=$ UNSIGNALIZED QUEUE IS PER VEHICLE

TABLE 7
UNSIGNALIZED INTERSECTION CAPACITY ANALYSIS SUMMARY AIRPORT WAY (FOUR LANE CROSS-SECTION) AND THE SUTTON DEVELOPMENT/PARK AMENITY ACCESS

| Intersection | Time of Day | Scenario | Performance Measure | Eastbound |  |  | Westbound |  |  | Northbound |  |  | Southbound |  |  | LOS | Notes |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |  |  |
| Townhouse Access / Park Access (N/S) \& Airport Way (E/W) | Weekday <br> Morning <br> Peak Hour | $\begin{aligned} & 2024 \text { Base + Site } \\ & \text { (Phase } 3 \text { \& 4) } \end{aligned}$ | Volumes | 7 | 405 | 7 |  | 952 | 13 |  |  | 20 | 13 |  | 7 | A | OK . SB is appraoching capacity |
|  |  |  | Delay | 10.5 | 5.3 | 0.0 |  | 0.0 | 0.0 |  |  | 9.7 | 30.0 |  |  |  |  |
|  |  |  | 95\% Queue (veh) | 0.0 | 0.0 | 0.0 |  | 0.0 | 0.0 |  |  | 0.1 | 0.4 |  |  |  |  |
|  |  | $\begin{aligned} & 2035 \text { Base + Site } \\ & \text { (Phase } 3 \text { \& 4) } \end{aligned}$ | Volumes | 7 | 488 | 7 |  | 1094 | 13 |  |  | 20 | 13 |  | 7 | A | $\mathrm{OK} . \mathrm{SB}$ is appraoching capacity |
|  |  |  | Delay | 11.3 | 5.7 | 0.0 |  | 0.0 | 0.0 |  |  | 10.1 | 41.3 |  |  |  |  |
|  |  |  | 95\% Queue (veh) | 0.0 | 0.0 | 0.0 |  | 0.0 | 0.0 |  |  | 0.1 | 0.6 |  |  |  |  |
|  | Weekday Afternoon Peak Hour | $\begin{aligned} & 2024 \text { Base + Site } \\ & (\text { Phase } 3 \& 4) \end{aligned}$ | Volumes | 7 | 1070 | 18 |  | 495 | 13 |  |  | 13 | 13 |  | 7 | A | OK . SB is appraoching capacity |
|  |  |  | Delay | 8.7 | 4.4 | 0.0 |  | 0.0 | 0.0 |  |  | 13.8 | 28.0 |  |  |  |  |
|  |  |  | 95\% Queue (veh) | 0.0 | 0.0 | 0.0 |  | 0.0 | 0.0 |  |  | 0.1 | 0.4 |  |  |  |  |
|  |  | $\begin{aligned} & 2035 \text { Base + Site } \\ & (\text { Phase } 3 \& 4) \end{aligned}$ | Volumes | 7 | 1225 | 18 |  | 581 | 13 |  |  | 13 | 13 |  | 7 | A | OK. SB is appraoching capacity |
|  |  |  | Delay | 9.0 | 4.5 | 0.0 |  | 0.0 | 0.0 |  |  | 15.2 | 38.4 |  |  |  |  |
|  |  |  | 95\% Queue (veh) | 0.0 | 0.0 | 0.0 |  | 0.0 | 0.0 |  |  | 0.1 | 0.6 |  |  |  |  |
| Delay $=$ Average Delay (seconds/vehicle) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | Intersection equals or exceeds capacity (LOS 'F'); or high approach delays (=> 50sec) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

TABLE 8
UNSIGNALIZED INTERSECTION CAPACITY ANALYSIS SUMMARY AIRPORT WAY AND BAYNES ROAD

| Intersection | Time of Day | Scenario | Performance Measure | Eastbound |  |  | Westbound |  |  | Northbound |  |  | Southbound |  |  | LOS | Notes |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |  |  |
| Baynes Road (N/S) \& Airport Way (EM) | Weekday <br> Morning Peak Hour | $\begin{aligned} & 2024 \text { Base + Site } \\ & \text { (Phase } 3 \text { \& 4) } \end{aligned}$ | Volumes | 8 | 9 |  |  | 49 | 115 |  |  |  | 91 |  | 24 | A | OK |
|  |  |  | Delay | 7.6 |  |  |  | 0.0 | 0.0 |  |  |  | 9.6 |  |  |  |  |
|  |  |  | 95\% Queue (veh) | 0.0 |  |  |  | 0.0 | 0.0 |  |  |  | 0.5 |  |  |  |  |
|  |  | $\begin{aligned} & 2035 \text { Base + Site } \\ & (\text { Phase } 3 \& 4) \end{aligned}$ | Volumes | 9 | 11 |  |  | 59 | 138 |  |  |  | 107 |  | 28 | A | OK |
|  |  |  | Delay | 7.7 |  |  |  | 0.0 | 0.0 |  |  |  | 9.8 |  |  |  |  |
|  |  |  | 95\% Queue (veh) | 0.0 |  |  |  | 0.0 | 0.0 |  |  |  | 0.6 |  |  |  |  |
|  | Weekday Afternoon Peak Hour | $\begin{aligned} & 2024 \text { Base + Site } \\ & \text { (Phase } 3 \text { \& 4) } \end{aligned}$ | Volumes | 21 | 48 |  |  | 15 | 110 |  |  |  | 132 |  | 6 | A | OK |
|  |  |  | Delay | 7.5 |  |  |  | 0.0 | 0.0 |  |  |  | 10.3 |  |  |  |  |
|  |  |  | 95\% Queue (veh) | 0.1 |  |  |  | 0.0 | 0.0 |  |  |  | 0.7 |  |  |  |  |
|  |  | $\begin{aligned} & 2035 \text { Base + Site } \\ & \text { (Phase } 3 \text { \& } 4 \text { ) } \end{aligned}$ | Volumes | 25 | 58 |  |  | 17 | 126 |  |  |  | 157 |  | 7 | A | OK |
|  |  |  | Delay | 7.6 |  |  |  | 0.0 | 0.0 |  |  |  | 10.8 |  |  |  |  |
|  |  |  | 95\% Queue (veh) | 0.1 |  |  |  | 0.0 | 0.0 |  |  |  | 0.9 |  |  |  |  |
| Delay $=$ Average Delay (seconds/vehicle) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | Intersection equals or exceeds capacity (LOS 'F'); or high approach delays (=> 50sec) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

TABLE 9
SIGNALIZED INTERSECTION CAPACITY ANALYSIS SUMMARY AIRPORT WAY (FOUR LANE CROSS-SECTION) AND BONSON ROAD


TABLE 9 CONTINUED
SIGNALIZED INTERSECTION CAPACITY ANALYSIS SUMMARY AIRPORT WAY (FOUR LANE CROSS-SECTION) AND HARRIS ROAD

| Intersection | Time of Day | Scenario | Performance Measure | Eastbound |  |  | Westbound |  |  | Northbound |  |  | Southbound |  |  | LOS | Notes |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |  |  |
| Harris Road (N/S) and Airport Way (E/W) | Weekday <br> Morning Peak Hour | 2024 Base | Volumes | 38 | 118 | 16 | 36 | 411 | 225 | 28 | 89 | 45 | 185 | 92 | 159 | B | Optimized singal timing with 70s Cycle length |
|  |  |  | V/C | 0.14 | 0.14 | 0.14 | 0.09 | 0.64 | 0.64 | 0.08 | 0.33 |  | 0.47 | 0.44 |  |  |  |
|  |  |  | 95\% Queue (m) | 7.6 | 11.8 | 11.8 | 7.3 | 46.3 | 46.3 | 6.8 | 24.1 |  | 31.3 | 34.9 |  |  |  |
|  |  | $\begin{aligned} & 2024 \text { Base } \\ & \text { +Site } \end{aligned}$ | Volumes | 43 | 135 | 16 | 37 | 413 | 294 | 30 | 108 | 80 | 286 | 93 | 160 | B | Optimized singal timing with 70s Cycle length |
|  |  |  | V/C | 0.17 | 0.16 | 0.16 | 0.09 | 0.65 | 0.65 | 0.09 | 0.45 |  | 0.83 | 0.44 |  |  |  |
|  |  |  | 95\% Queue (m) | 8.2 | 13.1 | 13.1 | 7.4 | 45.3 | 45.3 | 7.2 | 32.1 |  | 79.4 | 35.4 |  |  |  |
|  |  | 2035 Base | Volumes | 46 | 144 | 19 | 43 | 493 | 278 | 33 | 105 | 53 | 234 | 110 | 190 | B | Optimized singal timing with 70s Cycle length |
|  |  |  | V/C | 0.19 | 0.17 | 0.17 | 0.10 | 0.74 | 0.74 | 0.11 | 0.39 |  | 0.68 | 0.54 |  |  |  |
|  |  |  | 95\% Queue (m) | 9.5 | 15.0 | 15.0 | 9.0 | 66.6 | 66.6 | 7.5 | 28.1 |  | 47.9 | 44.6 |  |  |  |
|  |  | 2035 Base +Site | Volumes | 51 | 161 | 19 | 44 | 495 | 347 | 35 | 124 | 88 | 335 | 111 | 191 | C | Optimized singal timing with 75s Cycle length |
|  |  |  | V/C | 0.25 | 0.19 | 0.19 | 0.11 | 0.80 | 0.80 | 0.12 | 0.60 |  | 0.82 | 0.47 |  |  |  |
|  |  |  | 95\% Queue (m) | 10.8 | 17.1 | 17.1 | 9.5 | 79.9 | 79.9 | 8.0 | 41.0 |  | 79.0 | 44.8 |  |  |  |
|  | Weekday Afternoon Peak Hour | 2024 Base | Volumes | 195 | 477 | 31 | 13 | 169 | 245 | 14 | 88 | 67 | 257 | 84 | 57 | B | Optimized singal timing with 75s Cycle length |
|  |  |  | V/C | 0.64 | 0.48 | 0.48 | 0.05 | 0.56 | 0.56 | 0.05 | 0.48 |  | 0.76 | 0.27 |  |  |  |
|  |  |  | 95\% Queue (m) | 35.1 | 44.5 | 44.5 | 3.5 | 18.8 | 18.8 | 4.4 | 29.0 |  | 60.5 | 25.0 |  |  |  |
|  |  | $\begin{aligned} & 2024 \text { Base } \\ & \text { +Site } \end{aligned}$ | Volumes | 196 | 482 | 31 | 15 | 174 | 281 | 26 | 153 | 137 | 339 | 90 | 62 | C | Optimized singal with 90s Cycle length. |
|  |  |  | V/C | 0.79 | 0.60 | 0.60 | 0.08 | 0.68 | 0.68 | 0.09 | 0.79 |  | 0.82 | 0.22 |  |  |  |
|  |  |  | 95\% Queue (m) | 55.2 | 63.0 | 63.0 | 5.7 | 28.3 | 28.3 | 7.3 | 74.1 |  | 87.1 | 27.7 |  |  |  |
|  |  | $\begin{gathered} 2024 \text { Base } \\ + \text { Site (NBRT) } \end{gathered}$ | Volumes | 196 | 482 | 31 | 15 | 174 | 281 | 26 | 153 | 137 | 339 | 90 | 62 | B | Optimized singal with 80s Cycle length. |
|  |  |  | V/C | 0.77 | 0.54 | 0.54 | 0.07 | 0.64 | 0.64 | 0.09 | 0.53 | 0.35 | 0.77 | 0.26 |  |  |  |
|  |  |  | 95\% Queue (m) | 41.0 | 50.8 | 50.8 | 4.5 | 22.1 | 22.1 | 6.7 | 38.6 | 6.6 | 79.9 | 27.2 |  |  |  |
|  |  | 2035 Base | Volumes | 233 | 570 | 38 | 16 | 203 | 294 | 17 | 104 | 80 | 306 | 101 | 68 | C | Optimized singal timing with 90s Cycle length |
|  |  |  | V/C | 0.71 | 0.60 | 0.60 | 0.09 | 0.72 | 0.72 | 0.07 | 0.64 |  | 0.77 | 0.29 |  |  |  |
|  |  |  | 95\% Queue (m) | 57.9 | 69.0 | 69.0 | 5.4 | 31.5 | 31.5 | 5.8 | 45.5 |  | 74.3 | 34.6 |  |  |  |
|  |  | $\begin{aligned} & 2035 \text { Base + } \\ & \text { Site } \end{aligned}$ | Volumes | 234 | 575 | 38 | 18 | 208 | 330 | 29 | 169 | 150 | 388 | 107 | 73 | D | Optimized singal with 90s Cycle length. EBLT, NBTH/RT \& SBLT are near capacity. |
|  |  |  | V/C | 0.99 | 0.72 | 0.72 | 0.12 | 0.75 | 0.75 | 0.10 | 0.85 |  | 0.97 | 0.26 |  |  |  |
|  |  |  | 95\% Queue (m) | 77.1 | 77.1 | 77.1 | 6.5 | 33.4 | 33.4 | 7.6 | 96.3 |  | 120.9 | 33.7 |  |  |  |
|  |  | 2035 Base + <br> Site (NBRT) | Volumes | 234 | 575 | 38 | 18 | 208 | 330 | 29 | 169 | 150 | 388 | 107 | 73 | C | Optimized singal with 100s Cycle length. |
|  |  |  | V/C | 0.73 | 0.62 | 0.62 | 0.11 | 0.78 | 0.78 | 0.12 | 0.63 | 0.39 | 0.84 | 0.29 |  |  |  |
|  |  |  | 95\% Queue (m) | 68.5 | 80.6 | 80.6 | 6.7 | 39.4 | 39.4 | 8.3 | 54.6 | 54.6 | 90.6 |  | . 6 |  |  |
|  | Intersection approaching capacity (LOS 'D' or 'E'); or approach demand near capacity (v/c 0.85 to 0.99) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | Intersection equals or exceeds capacity (LOS 'F'); or high approach demand over capacity (v/c => 1.0)$95 \%$ Queue length exceeds the capacity of existing storage bay. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | $95 \%$ Queue length exceeds the capacity of existing storage bay. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Based on the capacity analysis summarized by TABLE 5 to TABLE 9 the following observations can be made:

## Harris Road (N/S) and Phase 3 North Access (E/W)

- Under 2024 base+site and 2035 base+site conditions, this point of access is expected to operate at an overall LOS A (Excellent) during the weekday morning and afternoon peak hours. The east approach experiences some delay under 2024 base+site conditions and 2035 base+site conditions during the afternoon peak hour.
- There are no operational issues expected for Harris Road i.e. delay is acceptable and there is no vehicle queuing.


## Harris Road (N/S) and Phase 3 Middle Access (E/W)

- Under 2024 base+site and 2035 base+site conditions, this point of access is expected to operate at an overall LOS A (Excellent) during the weekday morning and afternoon peak hours. The east approach experiences some delay under 2035 base+site conditions during the afternoon peak hour.
- There are no operational issues expected for Harris Road i.e. delay is acceptable and there is no vehicle queuing.


## Harris Road (N/S) and Phase 3 South Access (E/W)

- Under 2024 base+site and 2035 base+site conditions, this point of access is expected to operate at an overall LOS A (Excellent) during the weekday morning and afternoon peak hours. The east approach experiences some delay under 2024 base+site conditions and 2035 base+site conditions during the afternoon peak hour.
- There are no operational issues expected for Harris Road i.e. delay is acceptable and there is no vehicle queuing.


## Harris Road (N/S) and Phase 4 Truck Egress (E/W)

- Under 2024 base+site and 2035 base+site conditions, this point of access is expected to operate at an overall LOS A (Excellent) during the weekday morning and afternoon peak hours.
- There are no operational issues expected for Harris Road i.e. delay is acceptable and there is no vehicle queuing.


## Harris Road (N/S) and Phase 4 Passenger Car Egress (E/W)

- Under 2024 base+site and 2035 base+site conditions, this point of access is expected to operate at an overall LOS A (Excellent) during the weekday morning and afternoon peak hours.
- There are no operational issues expected for Fraser Way i.e. delay is acceptable and there is no vehicle queuing.


## Airport Way (E/W) and Phase 3 and 4 West Access (N/S)

- Under 2024 base+site conditions, this point of access is expected to operate at an overall LOS A (Excellent) during the weekday morning and the afternoon peak hours.
- Under 2035 base+site conditions, this point of access is expected to operate at an overall LOS A (Excellent) during the weekday morning and the afternoon peak hours. The westbound left turn movement is approaching capacity in the weekday afternoon peak hour.
- The north approach is experiencing some delay but minor vehicle queuing.
- There are no operational issues expected for Airport Way i.e. delay is acceptable and there is minor vehicle queuing.


## Airport Way (E/W) and Phase 3 East Access (N/S)

- Under 2024 base+site conditions, this point of access is expected to operate at an overall LOS A (Excellent) during the weekday morning peak and the afternoon peak hours.
- Under 2035 base+site conditions, this point of access is expected to operate at an overall LOS A (Excellent) during the weekday morning and the afternoon peak hours.
- The north approaches are experiencing some delay but minor vehicle queuing.
- There are no operational issues expected for Airport Way i.e. delay is acceptable and there is minor vehicle queuing which is not expected to have an impact on the pedestrian crossing to the east.


## Airport Way (E/W) and Phase 4 East Access (N/S)

- Under 2024 base+site conditions, this point of access is expected to operate at an overall LOS A (Excellent) during the weekday morning peak and the afternoon peak hours.
- Under 2035 base+site conditions, this point of access is expected to operate at an overall LOS A (Excellent) during the weekday morning and the afternoon peak hours.
- There are no operational issues expected for Airport Way i.e. delay is acceptable and there is minor vehicle queuing which is not expected to have an impact on the pedestrian crossing to the east.


## Airport Way (E/W) and Sutton Development/Park Amenity Access (N/S)

- Under 2024 base+site conditions, this unsignalized intersection is expected to operate at an overall LOS A (Excellent) during the weekday morning and afternoon peak hours.
- Under 2035 base+site conditions, this unsignalized intersection is expected to operate at an overall LOS A (Excellent) during the weekday morning and afternoon peak hours.
- The south approaches are experiencing some delay but minor vehicle queuing.
- There are no operational issues expected for Airport Way i.e. delay is acceptable and there is no vehicle queuing.


## Airport Way (E/W) and Baynes Road (N/S)

- Under 2024 base+site conditions, this unsignalized intersection is expected to operate at an overall LOS A (Excellent) during the weekday morning and afternoon peak hours. All movements are under capacity.
- Under 2035 base+site conditions, this unsignalized intersection is expected to operate at an overall LOS A (Excellent) during the weekday morning and afternoon peak hours. All movements are under capacity.
- There are no operational issues expected for Airport Way i.e. delay is acceptable and there is no vehicle queuing.


## Airport Way (E/W) and Bonson Road (N/S) Signalized

- Signalization of the intersection gives LOS B (Very Good) for the 2024 base weekday morning peak hour and the 2024 base and 2024 base+site weekday afternoon peak hours.
- The 2024 base+site, 2035 base and 2035 base+site weekday morning peak hours and the 2035 base and 2035 base+site weekday afternoon peak hours are LOS C (Good). The westbound through \& right turn are approaching capacity for the 2035 base+site weekday morning peak hour and the eastbound through \& right turn are approaching capacity for the 2035 base+site weekday afternoon peak hour scenarios.


## Airport Way (E/W) and Harris Road (N/S) Signalized

- Signalization of the intersection gives LOS B (Very Good) for the 2024 base, 2024 base+site, and 2035 base weekday morning peak hours and the 2024 base in the weekday afternoon peak hour. All movements are under capacity.
- The level of service for the 2035 base+site during the weekday morning peak hour is LOS C (Good). The level of service for the 2024 base+site and 2035 base during the weekday afternoon peak hour are LOS C (Good).
- The level of service of the intersection operates at LOS D (Fair) for the 2035 base+site during the weekday afternoon peak hours. The eastbound left-turn, northbound through/right turn and southbound left-turn movements are approaching capacity in the 2035 base+site scenario. The southbound left turn $95^{\text {th }}$ percentile queue exceeds 100 meters.
- Adding a northbound right-turn lane will improve the overall level of service to LOS B (Very Good) and LOS C (Good) during the weekday afternoon 2024 base+site and 2035 base+site scenarios, respectively. All movements are under capacity.


## Airport Way (E/W) and Golden Ears Way Roundabout

- A table for this capacity analysis was not presented given the inputs were largely assumed. Based on the inputs stated in Section 8.1, the intersection fails in 2024.


## General

The capacity analysis for all intersections along Airport Way and Harris Road gives excellent results in terms of overall delay i.e. LOS A, and queuing i.e. minor queuing.

### 8.3 Traffic Signal Warrant Analysis

CTS performed a Traffic Signal Warrant Analysis for the intersection of Airport Way and the GEBP - Phase 4 east point of access, for opening day, i.e. 2024. A 24 hour traffic volume count on Airport Way from 2020 was referenced to calculate the average peak six hour two-way traffic volume. The average was then compared with the AM and PM peak hour traffic volume and a peak hour adjustment factor calculated which was then applied to the opening day i.e. 2024, traffic volumes for the intersection of Airport Way and the GEBP - Phase 4 east point of access. Those adjusted traffic volumes were then inserted into the Transportation Association of Canada (TAC) Traffic Signal and Pedestrian Signal Warrant Analysis spreadsheet. FIGURE 7 and FIGURE 8 summarize the traffic signal warrant results.

Based on the results, a traffic signal is not warranted for the intersection of Airport Way and the GEBP - Phase 4 east point of access.

FIGURE 7
AM PEAK HOUR TRAFFIC SIGNAL WARRANT ANALYSIS


FIGURE 8
PM PEAK HOUR TRAFFIC SIGNAL WARRANT ANALYSIS


### 8.4 Gap Analysis

CTS assessed left turn gap availability for scenarios where the opposing traffic volume was 500 vehicles per hour and 1,000 vehicles per hour. For the 500 vehicles per hour opposing volume scenario it was determined that there could be up to 200 left turn gaps available within which to turn. For the 1,000 vehicles per hour opposing volume scenario it was determined that there could be up to 120 left turn gaps available within which to turn. For the scenarios analyzed, were there no left turn volumes close to the left turn gap availability thresholds.

### 9.0 ANALYSIS BY OTHERS

Throughout this report CTS has referenced a study undertaken by McElhanney specifically, their South Bonson Traffic Study Final Report 2016 which assessed impacts of future developments on road network performance, intersection control and pedestrian safety/accessibility. In particular the future planned development of Golden Ears Business Park (GEBP) and other residential/industrial land uses along Airport Way were considered. McElhanney's report assumed GEBP - Phase 3 and Phase 4 would be improved with approximately $1,867,700 \mathrm{ft}^{2}$ of GFA. This assumption is based on a plan previously provided by ONNI which anticipated GEBP - Phase 3 and Phase 4 would be improved with eight industrial buildings.

Also, within the report McElhanney references background traffic data from 2016, vehicle trip generation data from the ITE Trip Generation Manual ${ }^{\text {th }}$ Edition and assumes gross floor areas and horizon years at build-out for GEBP - Phase 3 and Phase 4 based on the best available information at the time.

ONNI's current development application proposes $1,356,907 \mathrm{ft}^{2}$ of GFA based on four industrial buildings with build-out in 2024. For the 2035 build-out scenario this report assumes no additional development.

Note - Constructing additional GFA beyond the current application would require a future development permit application and approval by Council.

The report by CTS updates much of the analysis undertaken by McElhanney by referencing more recent background traffic data from 2017 and the ITE Trip Generation Manual $10^{\text {th }}$ Edition and applying the most recent site plan gross floor areas and time line for build-out of GEBP - Phase 3 and Phase 4. For example, TABLE 10 compares the vehicle trip generation for GEBP - Phase 3 and Phase 4 for 2021, 2024 and 2031.

TABLE 10
GEBP - PHASE 3 AND PHASE 4 TRIP GENERATION

| FRM | GEBP | GFA | Year of Build-out |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Total Vehicle Trips |  |  |
|  |  |  | 2021 | 2024 | 2031 |
| McElhanney | Phase 3 (50\%) | 443,000 ft2 | 306 |  |  |
|  | Phase 4 (50\%) | 491,000 ft2 | 332 |  |  |
|  | Phase 3 (100\%) | 886,000 ft2 |  |  | 529 |
|  | Phase 4 (100\%) | 981,000 ft2 |  |  | 573 |
| CTS | Phase 3 (100\%) | 493,371 ft2 |  | 199 | 199 |
|  | Phase 4 (100\%) | 863, $536 \mathrm{ft2}$ |  | 346 | 346 |

The GEBP - Phase 3 and Phase $450 \%$ build-out vehicle trip generation in 2021 by McElhanney is 638 vehicles. The GEBP - Phase 3 and Phase $4100 \%$ build-out vehicle trip generation in 2024 by CTS is 545 vehicles. The CTS GEBP - Phase 3 and Phase 4 $100 \%$ build-out vehicle trip generation number is $14.6 \%$ less than the McElhanney GEBP - Phase 3 and Phase $450 \%$ build-out vehicle trip generation number. The difference between the two vehicle trip generation numbers is primarily the result of application of the new trip generation rate for an industrial park i.e. 0.4 trips per 1,000 $\mathrm{ft}^{2}$ of GFA.

Note - Given the CTS 100\% build-out vehicle trip generation by GEBP - Phase 3 and Phase 4 in 2024 is less than the McElhanney 50\% vehicle trip generation by GEBP Phase 3 and Phase 4 in 2021, presumes that all agreed upon road improvements could be delayed until as late as 2024.

Further, CTS understands ONNI and the City of Pitt Meadows previously agreed to numerous traffic improvements recommended by McElhanney in their 2016 report including:

- Four laning of Airport Way between Baynes Road and Golden Ears Way Roundabout;
- Signalization of Airport Way and Bonson Road;
- Signalization of Airport Way and Harris Road; and
- Numerous improvements for pedestrians and cyclists i.e. sidewalks and multiuser pathways, bike lanes, pedestrian crossings and bus shelters.

Despite the reduction in density between ONNI's current application and what was considered in 2016, CTS understands the traffic improvements previously agreed to between ONNI and the City will be constructed. Per the agreement between ONNI and the City of Pitt Meadows, the traffic improvements will be constructed when the City confirms that $50 \%$ of build-out of both phases has been completed as previously agreed to. As a result, the traffic improvements need to be completed prior to the proposed building on Phase 4 being completed. However, the timing of the traffic improvements may be altered based on the findings of this report as agreed to by the City and ONNI.

### 10.0 PARKING PROVISION

The vehicle parking and loading supply exceeds the vehicle parking and loading requirement for GEBP - Phase 3 and Phase 4 per the City of Pitt Meadows Zoning Bylaw 2025, Section 7: Parking and Loading Spaces.

Additional parking spaces have been provided for GEBP - Phase 3 and Phase 4 to account for:

- Vehicle parking accumulation throughout the day;
- Shift change vehicle parking overlap;
- Vehicle staging; and
- Vehicle and tractor trailer storage.


### 11.0 CONCLUSIONS AND RECOMMENDATIONS

### 11.1 Conclusions

- CTS assessed the site/access plan for GEBP - Phase 3 and Phase 4 and proposed park amenity with reference to the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads 2017. Design criteria included:
o Adjacent road network classification and function;
o Site layout and function;
o Driveway design;
o Driveway frequency;
o Adjacent driveway spacing;
o Opposite driveway spacing;
o Corner clearance; and
o Sight lines.
Based on the preceding assessments, all design criteria were exceeded.
- CTS undertook capacity analysis for the purpose of confirming the operation of Airport Way and Harris Road with GEBP - Phase 3 and Phase 4 site traffic for 2024 and 2035. An Airport Way four lane cross-section was assumed. Based on the analysis, there are no operational issues expected for Airport Way and Harris Road i.e. delay is acceptable and there is no vehicle queuing for all laning scenarios.
- CTS also undertook capacity analysis for the intersections of:
o Airport Way and Bonson Road;
o Airport Way and Harris Road;
o Airport Way and Baynes Road;
o Airport Way and Sutton Development/Park Amenity Access; and
o Airport Way and Golden Ears Way Roundabout.
With GEBP - Phase 3 and Phase 4 site traffic for 2024 and 2035. Based on the analysis, there are no operational issues expected for Airport Way or Harris Road and all of the intersections operate at acceptable levels of service other than the intersection of Airport Way and Golden Ears Way Roundabout.

Note - The intersection of Airport Way and Harris Road southbound left turn 95 ${ }^{\text {th }}$ percentile queue is 90.6 meters for the 2035 base+site scenario. That said, the most southerly driveway point of access on Harris Road north of Airport Way is offset approximately 135 meters north of Airport Way.

- CTS undertook a traffic signal warrant analysis for the intersection of Airport Way and GEBP - Phase 4 east point of access, for both the AM and PM peak hours. Based on the results of the analysis, a traffic signal is not warranted.
- CTS also assessed the two driveway points of access for the City of Pitt Meadows works yard. The south driveway point of access does not meet the minimum corner clearance criterion.
- CTS provided a summary and comparison of the studies undertaken by McElhanney for the City of Pitt Meadows and by CTS for ONNI. The two keys difference between the studies were:
o The GFA assumed by CTS in their 2020 study was substantially less than that assumed by McElhanney in their 2016 study; and
o The vehicle trip generation rate per 1,000 ft2 of GFA applied by CTS in their study was approximately half of that applied by McElhanney in their study.
- Lastly, CTS provided a rationale for the vehicle parking and loading provision.


### 11.2 Recommendations

Based on this Golden Ears Business Park access assessment it is recommended that:

1. The City of Pitt Meadows accept the assessment and conclusions as documented by this report.
2. The City of Pitt Meadows accept the Golden Ears Business Park - Phase 3 and Phase 4 site/access plan. That is two Phase 3 all movement points of access on Airport Way, two Phase 4 points of access on Airport Way, three Phase 3 all movement points of access on Harris Road, and two Phase 4 egress points of access on Harris Road.
3. A proposed park amenity all movement access on Airport Way opposite the Sutton Development access is recommended and that the intersection be pedestrian signal controlled.
4. Airport Way be widened to four lanes i.e. two eastbound lanes and two westbound lanes, between Golden Ears Way Roundabout and Baynes Road.
5. Harris Road be widened to three lanes i.e. one northbound lane, one southbound left turn lane and one southbound through/right-turn lane, between Airport Way and Fieldstone Walk.
6. A 60 meter northbound right turn lane be added to the south approach of the intersection of Airport Way and Harris Road.
7. The intersections of Airport Way and Bonson Road and Airport Way and Harris Road be re-constructed with signalization, before build-out of GEBP Phase 3 and Phase 4 in 2024.
8. The capacity analysis $95^{\text {th }}$ percentile queue be considered for the design of all left turn storage lanes for the signalized intersections of Airport Way and Bonson Road and Airport Way and Harris Road.
9. The City of Pitt Meadows consider restricting the turning movements at the south driveway point of access to their works yard, to right-in/right-out only.

Please call the undersigned should there be questions and/or comments pertaining to this REVISED FINAL Traffic Study.

Yours truly,

## CREATIVE TRANSPORTATION SOLUTIONS LTD.



Phone: (604) 936-6190 x237
Email: bdozzi@cts-bc.com

## APPENDICES

## APPENDIX A Phase 3 and Phase 4 SitelAccess Plan





| Area (SF) | Area (SM) |
| :---: | :---: |
| 863,868 SF | 80,256 $\mathrm{m}^{2}$ |
| Total Parking Provided |  |
| (lsaburr $3.6 \mathrm{~m} \times 5.5 \mathrm{~m}$ |  |
|  | ${ }_{728}^{9}$ |
| Small car $2.4 \mathrm{~m} \times 4.8 \mathrm{~m}$ | -168 |
| Loading provided |  |
| $\underset{\substack{\text { Dock loaing } \\ \text { GRADE LOADING }}}{ }$ |  |
|  | ${ }_{247}^{24}$ |

PROGRESS UPDATE

INTERNAL REVIEW ONLY



## APPENDIX B <br> City of Pitt Meadows Truck Route Network



## APPENDIX C Airport Way and Harris Road Preliminary Design







$\underset{\substack{\text { Exstr } \\ \text { SR }}}{\text { R }}$
LEGEND


mil\& a Pave

|  |  |
| :---: | :---: |
|  | TYPICAL SECTION - AIRPORT |
|  | (STN. $2+675-3+140)$ |
|  |  |
|  | MIMENMG ocm ful structue: |
|  | 50mm ucat |
|  |  |
|  | bub:base gai |
|  |  |
|  |  |
|  | EX. ОITCHTO हE RETANED |
|  | Grassed boulevard cow 450mm Topso |
|  |  |
|  | Can Not te Achleved |
|  | e: pavement structure based on pit |



|  |  |  |  |
| :---: | :---: | :---: | :---: |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
| No. | Date | REvsion | ${ }_{8 Y}$ |

The people behind your infrastructure.
R.F. BINNIE \& ASSOCIATES LTD. 314-9440 202 Street TEL 6045743336 BINNIE.com

| CLIENT | ONNI GROUP |
| :---: | :---: |
| Na DESCRIPTITON | GOLDEN EARS BUSINESS PARK 19265 \& 19300 AIRPORT WAY | GOLDEN EARS BUSINESS PARK

19265 \& 19300 AIRPORT WAY AIRPORT WAY WIDENING





TYPICAL SECTION - FRASER WAY
$\frac{(S T N .2+040-2+722)}{\text { SCALE: } 150+5}$


| WIDENNG Cw Full Structuen |
| :---: |
| 50 mm UCt1 |



(3) 1.50 m WIDE CONCREETE SIDEWALLKAS PER MMCD STD. DWG. O

(5) EX. OTCHH HO BE OVEEEREXCCAVATED AND REPLACED WTH STRUCTURAL F FLL

© PROP. Street Llaht
NOT FOR CONSTRUCTION
Note: Pavemen structure to be confrmeobr geotechncal enaneer




TYPICAL SECTION - FRASER WAY
$\frac{(\text { STN. } 2+040-2+722)}{\text { SCALE: } 150 \mathrm{H} \text { ) }}$




(4) 1.50 WIIE COCNRETE SIDEWALLK AS PER MMCO STD. DWG. C

- 100m THHC CoNCRETE


(© PROP. StREETLIGHT
note: Pavement structure to be confirmed by geotechncalenaneer


TYPICAL SECTION - FRASER WAY

(1) MIN. Somm MLL AND PAVE CNU CCH1 (DEPTH To BE CONFFRMED)





(TO BE CONFRMMED By GEOTECHNCALL ENGINEER)
-
Note: Pavement structure to be confrimed by geotechncal enainer

| CLENT | ONNI GROUP <br> 200-1010 SEYMOUR STREET VANCOUVER BC VGB 3M6 |
| :---: | :---: |
| DRawing | GOLDEN EARS BUSINESS PARK 19265 \& 19300 AIRPORT WAY FRASER WAY ROADWORKS |


| SURVEYED BY <br> DRAWN BY <br> designed by VL <br> CHECKED BY NP |
| :---: |
|  |



LEGENDmLL \& Pave

R.F. BINNIE \& ASSOCIATES LTD. $314-9440202$ Street
Langley, BC V1M 4AG TEL 6045743336 BINNIE.com

${ }^{\text {DATE }} \stackrel{2020-8}{ }$
19-1049-R4-1


# APPENDIX D Turning Movement Count Data Summary Sheets 

Project:
\#5623: Golden Ears Business Park Traffic Engineering Services
Municipality: Weather:



Weather: Light snow
Vehicle Class: Passenger Cars



Note: Crosswalk bike volumes shown are cyclists who walked their bike and are not included in the pedestrian volume totals




Vehicle Class: Bicycles
Note: Crosswalk bike volumes shown are cyclists who walked their bike and are not included in the pedestrian volume totals


Project:
\#5623: Golden Ears Business Park Traffic Engineering Services
Municipality: Weather: Light snow



Weather: Light snow
Vehicle Class: Passenger Cars



Note: Crosswalk bike volumes shown are cyclists who walked their bike and are not included in the pedestrian volume totals




Note: Crosswalk bike volumes shown are cyclists who walked their bike and are not included in the pedestrian volume totals


Project: Municipality Weather:

\#5623: Golden Ears Business Park Traffic Engineering Services Pitt Meadows Light snow





Weather: Light snow
Vehicle Class: Bicycles
Note: Crosswalk bike volumes shown are cyclists who rode their bike across the crosswalk and are not included in the pedestrian volume totals



Baynes Rd \& Airport Way
Tuesday, February 28, 2017

Project: \#5623: Golden Ears Business Park Traffic Engineering Services Municipality: Pitt Meadows

Weather: Light snow
Vehicle Class: All Motorized Vehicles
Note: Shifted peak hour





# APPENDIX E <br> Intersection Capacity Analysis Summary Sheets 

HCS7 Two-Way Stop-Control Report


HCS7 Two-Way Stop-Control Report


HCS7 Two-Way Stop-Control Report


HCS7 Two-Way Stop-Control Report


HCS7 Two-Way Stop-Control Report


HCS7 Two-Way Stop-Control Report


HCS7 Two-Way Stop-Control Report


HCS7 Two-Way Stop-Control Report


Copyright © 2020 University of Florida. All Rights Reserved. $\begin{gathered}\text { HCS TMA TWSC Version } 7.8 \\ \text { Harris Rd } \& \text { Ph } 3 \text { Mid Access PM } 20358+5 . \text {.tw }\end{gathered}$
Generated: 11/25/2020 9:52:01 AM

HCS7 Two-Way Stop-Control Report


HCS7 Two-Way Stop-Control Report


HCS7 Two-Way Stop-Control Report


HCS7 Two-Way Stop-Control Report


HCS7 Two-Way Stop-Control Report


HCS7 Two-Way Stop-Control Report


HCS7 Two-Way Stop-Control Report


HCS7 Two-Way Stop-Control Report


HCS7 Two-Way Stop-Control Report


HCS7 Two-Way Stop-Control Report


HCS7 Two-Way Stop-Control Report


HCS7 Two-Way Stop-Control Report


HCS7 Two-Way Stop-Control Report


HCS7 Two-Way Stop-Control Report


HCS7 Two-Way Stop-Control Report


HCS7 Two-Way Stop-Control Report


HCS7 Two-Way Stop-Control Report


HCS7 Two-Way Stop-Control Report


HCS7 Two-Way Stop-Control Report


HCS7 Two-Way Stop-Control Report


HCS7 Two-Way Stop-Control Report


HCS7 Two-Way Stop-Control Report


Copyright © 2021 University of Florida. All Rights Reserved. $\begin{gathered}\text { HCS Mma } \\ \text { AWSC Version } 7.8 \\ \text { Airport Way \& Ph } 4 \text { E Access AM 2035B }+5 \text {.xtw }\end{gathered}$
Generated: 1/26/2021 12:21:23 PM

HCS7 Two-Way Stop-Control Report


HCS Twa TWSC Version 7.8
Airport Way \& Ph 4 E Access PM 2024B + S. .tw

HCS7 Two-Way Stop-Control Report

| General Information |  | Site Informa |
| :---: | :---: | :---: |
| Analyst | RC | Intersection |
| Agency/Co. | CTS | Jurisdiction |
| Date Performed | Base+Site | East/West Street |
| Analysis Year | 2035 | North/South Stre |
| Time Analyzed | Wkdy PM Peak Hr | Peak Hour Factor |
| Intersection Orientation | East-West | Analysis Time Per |
| Project Description | Golden Ears Business Park Access Study |  |
| Lanes |  |  |
|  |  |  |


| Vehicle Volumes and Adjustments |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{array}{\|l\|} \hline \text { Approach } \\ \hline \text { Movement } \\ \hline \end{array}$ | Eastbound |  |  |  | Westbound |  |  |  | Northbound |  |  |  | Southbound |  |  |  |
|  | u | L | T | R | $u$ | L | T | R | u | L | T | R | $u$ | L | T | R |
| Priority | 10 | 1 | 2 | 3 | 4 U | 4 | 5 | 6 |  | 7 | 8 | 9 |  | 10 | 11 | 12 |
| Number of Lanes | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 0 |  | 0 | 1 | 0 |  | 0 | 0 | 0 |
| Configuration |  |  | T | TR |  | LT | T |  |  |  | LR |  |  |  |  |  |
| Volume (veh/h) |  |  | 1125 | 20 |  | 38 | 550 |  |  | 6 |  | 125 |  |  |  |  |
| Percent Heary Vehicles (\%) |  |  |  |  |  | 0 |  |  |  | 0 |  | 0 |  |  |  |  |
| Proportion Time Blocked |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Percent Grade (\%) |  |  |  |  |  |  |  |  | 0 |  |  |  |  |  |  |  |
| Right Turn Channelized |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Median Type \| Storage | Undivided |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |



## Delay, Queue Length, and Level of Service



Generated: 1/26/2021 12:26:11 PM

HCS7 Two-Way Stop-Control Report


HCS7 Two-Way Stop-Control Report


HCS7 Two-Way Stop-Control Report


HCS7 Two-Way Stop-Control Report


HCS7 Two-Way Stop-Control Report


HCS7 Two-Way Stop-Control Report

| General Information |  |  |  |  |  |  | Site Information |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Analyst | RC |  |  |  |  |  | Intersection |  |  |  | Airport Way \& Baynes Rd |  |  |  |  |  |
| Agency/Co. | CTS |  |  |  |  |  | Jurisdiction |  |  |  | Pitt Meadows, BC |  |  |  |  |  |
| Date Performed | Base+Site |  |  |  |  |  | East/West Street |  |  |  | Airport Way |  |  |  |  |  |
| Analysis Year | 2035 |  |  |  |  |  | North/South Street |  |  |  | Baynes Rd |  |  |  |  |  |
| Time Analyzed | Wkdy AM Peak Hr |  |  |  |  |  | Peak Hour Factor |  |  |  | 0.93 |  |  |  |  |  |
| Intersection Orientation | East-West |  |  |  |  |  | Analysis Time Period (hrs) |  |  |  | 0.25 |  |  |  |  |  |
| Project Description | Golden Ears Business Park Access Study |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Lanes |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Vehicle Volumes and Adjustments |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Approach | Eastbound |  |  |  | Westbound |  |  |  | Northbound |  |  |  | Southbound |  |  |  |
| Movement | u | เ | T | R | $u$ | L | T | R | $u$ | , | T | R | $u$ | , | T | R |
| Priority | 10 | 1 | 2 | 3 | 4 U | 4 | 5 | 6 |  | 7 | 8 | 9 |  | 10 | 11 | 12 |
| Number of Lanes | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 |  | 0 | 0 | 0 |  | 0 | 1 | 0 |
| Configuration |  | LT |  |  |  |  | T | R |  |  |  |  |  |  | LR |  |
| Volume (veh/h) |  | 9 | 11 |  |  |  | 59 | 138 |  |  |  |  |  | 107 |  | 28 |
| Percent Heavy Vehicles (\%) |  | 2 |  |  |  |  |  |  |  |  |  |  |  | 15 |  | 2 |
| Proportion Time Blocked |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Percent Grade (\%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Right Turn Channelized |  |  |  |  |  |  | No |  |  |  |  |  |  |  |  |  |
| Median Type \| Storage |  |  |  | Undi |  |  |  |  |  |  |  |  |  |  |  |  |
| Critical and Follow-up Headways |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Base Critical Headway (sec) |  | 4.1 |  |  |  |  |  |  |  |  |  |  |  | 7.1 |  | 6.2 |
| Critical Headway (sec) |  | 4.12 |  |  |  |  |  |  |  |  |  |  |  | 6.55 |  | 6.22 |
| Base Follow-Up Headway (sec) |  | 2.2 |  |  |  |  |  |  |  |  |  |  |  | 3.5 |  | 3.3 |
| Follow-Up Headway (sec) |  | 2.22 |  |  |  |  |  |  |  |  |  |  |  | 3.64 |  | 3.32 |
| Delay, Queue Length, and Level of Service |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Flow Rate, v (veh/h) |  | 10 |  |  |  |  |  |  |  |  |  |  |  |  | 145 |  |
| Capacity, c (veh/h) |  | 1359 |  |  |  |  |  |  |  |  |  |  |  |  | 893 |  |
| v/c Ratio |  | 0.01 |  |  |  |  |  |  |  |  |  |  |  |  | 0.16 |  |
| 95\% Queue Length, Qas (veh) |  | 0.0 |  |  |  |  |  |  |  |  |  |  |  |  | 0.6 |  |
| Control Delay (s/veh) |  | 7.7 |  |  |  |  |  |  |  |  |  |  |  |  | 9.8 |  |
| Level of Service (LOS) |  | A |  |  |  |  |  |  |  |  |  |  |  |  | A |  |
| Approach Delay (s/veh) | 3.5 |  |  |  |  |  |  |  |  |  |  |  | 9.8 |  |  |  |
| Approach LOS |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

HCS7 Two-Way Stop-Control Report


HCS7 Two-Way Stop-Control Report


|  |  |  |  |  |  |  |  | $\dagger$ |  |  |  | $\downarrow$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | \％ | 个的 |  | \％ | $\uparrow$ 个 |  | \％ | $\hat{\dagger}$ |  | \％ | F |  |
| Traffic Volume（vph） | 38 | 118 | 16 | 36 | 411 | 225 | 28 | 89 | 45 | 185 | 92 | 159 |
| Future Volume（vph） | 38 | 118 | 16 | 36 | 411 | 225 | 28 | 89 | 45 | 185 | 92 | 159 |
| Ideal Flow（vphpl） | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width（m） | 3.1 | 3.3 | 3.3 | 3.1 | 3.3 | 3.3 | 3.1 | 3.3 | 3.3 | 3.5 | 3.5 | 3.5 |
| Storage Length（ m ） | 75.0 |  | 0.0 | 30.0 |  | 0.0 | 15.0 |  | 0.0 | 0.0 |  | 60.0 |
| Storage Lanes | 1 |  | 0 | 1 |  | 0 | 1 |  | 0 | 1 |  |  |
| Taper Length（m） | 7.5 |  |  | 7.5 |  |  | 7.5 |  |  | 7.5 |  |  |
| Lane Util．Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt |  | 0.982 |  |  | 0.947 |  |  | 0.950 |  |  | 0.905 |  |
| Flt Protected | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  |
| Satd．Flow（prot） | 1624 | 3011 | 0 | 1624 | 2965 | 0 | 1624 | 1662 | 0 | 1700 | 1619 |  |
| FIt Permitted | 0.277 |  |  | 0.661 |  |  | 0.593 |  |  | 0.584 |  |  |
| Satd．Flow（perm） | 473 | 3011 | 0 | 1130 | 2965 | － | 1013 | 1662 | 0 | 1045 | 1619 |  |
| Right Turn on Red |  |  | Yes |  |  | Yes |  |  | Yes |  |  | Yes |
| Satd．Flow（RTOR） |  | 17 |  |  | 154 |  |  | 38 |  |  | 130 |  |
| Link Speed（k／h） |  | 50 |  |  | 50 |  |  | 50 |  |  | 50 |  |
| Link Distance（m） |  | 745.8 |  |  | 141.7 |  |  | 286.2 |  |  | 135.2 |  |
| Travel Time（s） |  | 53.7 |  |  | 10.2 |  |  | 20.6 |  |  | 9.7 |  |
| 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（\％） | 5\％ | 15\％ | 5\％ | 5\％ | 15\％ | 5\％ | 5\％ | 5\％ | 5\％ | 5\％ | 5\％ | 5\％ |
| Shared Lane Traffic（\％） |  |  |  |  |  |  |  |  |  |  |  |  |
| Lane Group Flow（vph） | 41 | 144 | 0 | 39 | 684 | 0 | 30 | 144 | 0 | 199 | 270 | 0 |
| Turn Type | pm＋pt | NA |  | pm＋pt | NA |  | pm＋pt | NA |  | pm＋pt | NA |  |
| Protected Phases | 7 | 4 |  | 3 | 8 |  | 5 | 2 |  | 1 | 6 |  |
| Permitted Phases | 4 |  |  | 8 |  |  | 2 |  |  | 6 |  |  |
| Detector Phase | 7 | 4 |  | 3 | 8 |  | 5 | 2 |  | 1 | 6 |  |
| Switch Phase |  |  |  |  |  |  |  |  |  |  |  |  |
| Minimum Initial（s） | 4.0 | 7.0 |  | 4.0 | 7.0 |  | 4.0 | 7.0 |  | 4.0 | 7.0 |  |
| Minimum Split（s） | 8.5 | 26.5 |  | 8.5 | 26.5 |  | 8.5 | 26.5 |  | 8.5 | 26.5 |  |
| Total Split（s） | 8.5 | 26.5 |  | 8.5 | 26.5 |  | 8.5 | 26.5 |  | 8.5 | 26.5 |  |
| Total Split（\％） | 12．1\％ | 37．9\％ |  | 12．1\％ | 37．9\％ |  | 12．1\％ | 37．9\％ |  | 12．1\％ | 37．9\％ |  |
| Yellow Time（s） | 3.5 | 3.5 |  | 3.5 | 3.5 |  | 3.5 | 3.5 |  | 3.5 | 3.5 |  |
| All－Red Time（s） | 1.0 | 1.0 |  | 1.0 | 1.0 |  | 1.0 | 1.0 |  | 1.0 | 1.0 |  |
| Lost Time Adjust（s） | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 |  |
| Total Lost Time（s） | 4.5 | 4.5 |  | 4.5 | 4.5 |  | 4.5 | 4.5 |  | 4.5 | 4.5 |  |
| Lead／Lag | Lead | Lag |  | Lead | Lag |  | Lead | Lag |  | Lead | Lag |  |
| Lead－Lag Optimize？ | Yes | Yes |  | Yes | Yes |  | Yes | Yes |  | Yes | Yes |  |
| Recall Mode | None | Min |  | None | Min |  | None | None |  | None | None |  |
| Act Effct Green（s） | 15.8 | 14.7 |  | 15.8 | 14.7 |  | 13.8 | 10.8 |  | 16.0 | 14.8 |  |
| Actuated g／C Ratio | 0.35 | 0.33 |  | 0.35 | 0.33 |  | 0.31 | 0.24 |  | 0.36 | 0.33 |  |
| v／c Ratio | 0.14 | 0.14 |  | 0.09 | 0.64 |  | 0.08 | 0.34 |  | 0.45 | 0.43 |  |
| Control Delay | 10.4 | 12.1 |  | 9.7 | 14.1 |  | 11.8 | 15.9 |  | 16.5 | 11.5 |  |
| Queue Delay | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 |  |
| Total Delay | 10.4 | 12.1 |  | 9.7 | 14.1 |  | 11.8 | 15.9 |  | 16.5 | 11.5 |  |
| LOS | B | B |  | A | B |  | B | B |  | B | B |  |
| Approach Delay |  | 11.7 |  |  | 13.8 |  |  | 15.2 |  |  | 13.6 |  |
| Approach LOS |  | B |  |  | B |  |  | B |  |  | B |  |
| Queue Length 50th（m） | 1.9 | 3.1 |  | 1.8 | 15.2 |  | 1.2 | 6.7 |  | 9.1 | 6.2 |  |

7255 －Golden Ears Business Park
Creative Transportation Solutions Ltd

Lanes，Volumes，Timings


[^0]Synchro 10 Report
Creative Transportation Solutions Ltd

|  |  |  |  |  |  |  |  | 4 |  |  |  | $\downarrow$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | \% | 个t |  | \% | 个 $\uparrow$ |  | 9 | F |  | \% | F |  |
| Traffic Volume (vph) | 43 | 135 | 16 | 37 | 413 | 294 | 30 | 108 | 80 | 286 | 93 | 160 |
| Future Volume (vph) | 43 | 135 | 16 | 37 | 413 | 294 | 30 | 108 | 80 | 286 | 93 | 160 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.1 | 3.3 | 3.3 | 3.1 | 3.3 | 3.3 | 3.1 | 3.3 | 3.3 | 3.1 | 3.3 | 3.3 |
| Storage Length ( m ) | 75.0 |  | 0.0 | 30.0 |  | 0.0 | 15.0 |  | 0.0 | 0.0 |  | 0.0 |
| Storage Lanes | 1 |  | 0 | 1 |  | 0 | 1 |  | 0 | 1 |  | 0 |
| Taper Length (m) | 7.5 |  |  | 7.5 |  |  | 7.5 |  |  | 7.5 |  |  |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt |  | 0.984 |  |  | 0.938 |  |  | 0.936 |  |  | 0.905 |  |
| Flt Protected | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  |
| Satd. Flow (prot) | 1624 | 3013 | 0 | 1624 | 2953 | 0 | 1624 | 1637 | 0 | 1624 | 1583 | 0 |
| FIt Permitted | 0.263 |  |  | 0.649 |  |  | 0.592 |  |  | 0.422 |  |  |
| Satd. Flow (perm) | 449 | 3013 | 0 | 1109 | 2953 | 0 | 1012 | 1637 | 0 | 721 | 1583 | 0 |
| Right Turn on Red |  |  | Yes |  |  | Yes |  |  | Yes |  |  | Yes |
| Satd. Flow (RTOR) |  | 17 |  |  | 269 |  |  | 56 |  |  | 129 |  |
| Link Speed (k/h) |  | 50 |  |  | 50 |  |  | 50 |  |  | 50 |  |
| Link Distance (m) |  | 281.8 |  |  | 141.0 |  |  | 175.3 |  |  | 31.0 |  |
| Travel Time (s) |  | 20.3 |  |  | 10.2 |  |  | 12.6 |  |  | 2.2 |  |
| 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 (\%) | 5\% | 15\% | 5\% | 5\% | 15\% | 5\% | 5\% | 5\% | 5\% | 5\% | 5\% | 5\% |
| Shared Lane Traffic (\%) |  |  |  |  |  |  |  |  |  |  |  |  |
| Lane Group Flow (vph) | 46 | 162 | 0 | 40 | 760 | 0 | 32 | 202 | 0 | 308 | 272 | 0 |
| Turn Type | pm+pt | NA |  | pm+pt | NA |  | pm+pt | NA |  | pm+pt | NA |  |
| Protected Phases | 7 | 4 |  | 3 | 8 |  | 5 | 2 |  | 1 | 6 |  |
| Permitted Phases | 4 |  |  | 8 |  |  | 2 |  |  | 6 |  |  |
| Detector Phase | 7 | 4 |  | 3 | 8 |  | 5 | 2 |  | 1 | 6 |  |
| Switch Phase |  |  |  |  |  |  |  |  |  |  |  |  |
| Minimum Initial (s) | 4.0 | 7.0 |  | 4.0 | 7.0 |  | 4.0 | 7.0 |  | 4.0 | 7.0 |  |
| Minimum Split (s) | 8.5 | 26.5 |  | 8.5 | 26.5 |  | 8.5 | 26.5 |  | 8.5 | 26.5 |  |
| Total Split (s) | 8.5 | 26.5 |  | 8.5 | 26.5 |  | 8.5 | 26.5 |  | 8.5 | 26.5 |  |
| Total Split (\%) | 12.1\% | 37.9\% |  | 12.1\% | 37.9\% |  | 12.1\% | 37.9\% |  | 12.1\% | 37.9\% |  |
| Yellow Time (s) | 3.5 | 3.5 |  | 3.5 | 3.5 |  | 3.5 | 3.5 |  | 3.5 | 3.5 |  |
| All-Red Time (s) | 1.0 | 1.0 |  | 1.0 | 1.0 |  | 1.0 | 1.0 |  | 1.0 | 1.0 |  |
| Lost Time Adjust (s) | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 |  |
| Total Lost Time (s) | 4.5 | 4.5 |  | 4.5 | 4.5 |  | 4.5 | 4.5 |  | 4.5 | 4.5 |  |
| Lead/Lag | Lead | Lag |  | Lead | Lag |  | Lead | Lag |  | Lead | Lag |  |
| Lead-Lag Optimize? | Yes | Yes |  | Yes | Yes |  | Yes | Yes |  | Yes | Yes |  |
| Recall Mode | None | Min |  | None | Min |  | None | None |  | None | None |  |
| Act Effct Green (s) | 16.4 | 15.2 |  | 16.4 | 15.2 |  | 13.3 | 11.4 |  | 16.5 | 15.4 |  |
| Actuated g/C Ratio | 0.36 | 0.33 |  | 0.36 | 0.33 |  | 0.29 | 0.25 |  | 0.36 | 0.34 |  |
| v/c Ratio | 0.17 | 0.16 |  | 0.09 | 0.65 |  | 0.09 | 0.45 |  | 0.83 | 0.44 |  |
| Control Delay | 11.0 | 12.4 |  | 10.0 | 12.5 |  | 11.8 | 16.7 |  | 40.5 | 11.7 |  |
| Queue Delay | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 |  |
| Total Delay | 11.0 | 12.4 |  | 10.0 | 12.5 |  | 11.8 | 16.7 |  | 40.5 | 11.7 |  |
| LOS | B | B |  | A | B |  | B | B |  | D | B |  |
| Approach Delay |  | 12.1 |  |  | 12.4 |  |  | 16.0 |  |  | 27.0 |  |
| Approach LOS |  | B |  |  | B |  |  | B |  |  | C |  |
| Queue Length 50th (m) | 2.3 | 3.8 |  | 2.0 | 14.9 |  | 1.3 | 9.5 |  | 15.4 | 6.4 |  |

7255 - Golden Ears Business Park
Creative Transportation Solutions Ltd.

Lanes, Volumes, Timings
1: Harris Road \& Airport Way

|  |  |  |  |  |  |  |  |  | $\dagger$ | $>$ |  |  | $\downarrow$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Lane Group |  | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Queue Length | 95th (m) | 8.2 | 13.1 |  | 7.4 | 45.3 |  | 7.2 | 32.1 |  | \#79.4 | 35.4 |  |
| Internal Link D | Dist (m) |  | 257.8 |  |  | 117.0 |  |  | 151.3 |  |  | 7.0 |  |
| Turn Bay Leng | gth (m) | 75.0 |  |  | 30.0 |  |  | 15.0 |  |  |  |  |  |
| Base Capacity | (vph) | 277 | 1654 |  | 448 | 1736 |  | 354 | 920 |  | 372 | 923 |  |
| Starvation Cap | p Reductn | 0 | 0 |  | 0 | 0 |  | 0 | 0 |  | 0 | 0 |  |
| Spillback Cap | Reductn | 0 | 0 |  | 0 | 0 |  | 0 | 0 |  | 0 | 0 |  |
| Storage Cap R | Reductn | 0 | 0 |  | 0 | 0 |  | 0 | 0 |  | 0 | 0 |  |
| Reduced v/c R | Ratio | 0.17 | 0.10 |  | 0.09 | 0.44 |  | 0.09 | 0.22 |  | 0.83 | 0.29 |  |
| Intersection Summary |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Area Type: Other |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Cycle Length: 70 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Actuated Cycle Length: 45.8 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Natural Cycle: 70 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Control Type: Actuated-Uncoordinated |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Maximum v/c Ratio: 0.83 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Intersection Signal Delay: 17.5 |  |  |  |  |  | Intersection LOS: B |  |  |  |  |  |  |  |
| Intersection Capacity Utilization 65.6\% ICU Level of Service CAnalysis Period (min) 15 |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| \# 95th percentile volume exceeds capacity, queue may be longer. |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Queue shown is maximum after two cycles. |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Splits and Phases: 1: Harris Road \& Airport Way |  |  |  |  |  |  |  |  |  |  |  |  |  |
| $\uplus_{\text {O1 }}$ | $4_{\square 2}$ |  |  |  |  |  |  | $\rightarrow{ }_{\square}{ }_{4}$ |  |  |  |  |  |
| 3.5 s | 26.5 s |  |  |  |  |  |  | 26.5 s |  |  |  |  |  |
| 405 | $\dagger{ }^{1}$ |  |  |  |  |  |  | $\leftarrow$ |  |  |  |  |  |
| 8.5 s | 26.5 s |  |  |  | I | 8.5 |  | 5.5 s |  |  |  |  |  |


|  |  |  |  |  |  |  |  | $\uparrow$ |  |  |  | $\checkmark$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | \% | 个t |  | \% | 㙟 |  | \% | $\hat{\square}$ |  | ${ }^{7}$ | f |  |
| Traffic Volume (vph) | 46 | 144 | 19 | 43 | 493 | 278 | 33 | 105 | 53 | 234 | 110 | 190 |
| Future Volume (vph) | 46 | 144 | 19 | 43 | 493 | 278 | 33 | 105 | 53 | 234 | 110 | 190 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.1 | 3.3 | 3.3 | 3.1 | 3.3 | 3.3 | 3.1 | 3.3 | 3.3 | 3.1 | 3.3 | 3.3 |
| Storage Length ( m ) | 75.0 |  | 0.0 | 30.0 |  | 0.0 | 15.0 |  | 0.0 | 0.0 |  | 0.0 |
| Storage Lanes | 1 |  | 0 | 1 |  | 0 | 1 |  | 0 | 1 |  | 0 |
| Taper Length (m) | 7.5 |  |  | 7.5 |  |  | 7.5 |  |  | 7.5 |  |  |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt |  | 0.983 |  |  | 0.946 |  |  | 0.950 |  |  | 0.905 |  |
| Flt Protected | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  |
| Satd. Flow (prot) | 1624 | 3013 | 0 | 1624 | 2964 | 0 | 1624 | 1662 | 0 | 1624 | 1583 | 0 |
| Flt Permitted | 0.231 |  |  | 0.641 |  |  | 0.566 |  |  | 0.468 |  |  |
| Satd. Flow (perm) | 395 | 3013 | 0 | 1095 | 2964 | 0 | 967 | 1662 | 0 | 800 | 1583 | 0 |
| Right Turn on Red |  |  | Yes |  |  | Yes |  |  | Yes |  |  | Yes |
| Satd. Flow (RTOR) |  | 20 |  |  | 164 |  |  | 38 |  |  | 130 |  |
| Link Speed (k/h) |  | 50 |  |  | 50 |  |  | 50 |  |  | 50 |  |
| Link Distance (m) |  | 281.8 |  |  | 141.0 |  |  | 175.3 |  |  | 31.0 |  |
| Travel Time (s) |  | 20.3 |  |  | 10.2 |  |  | 12.6 |  |  | 2.2 |  |
| 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 (\%) | 5\% | 15\% | 5\% | 5\% | 15\% | 5\% | 5\% | 5\% | 5\% | 5\% | 5\% | 5\% |
| Shared Lane Traffic (\%) |  |  |  |  |  |  |  |  |  |  |  |  |
| Lane Group Flow (vph) | 49 | 175 | 0 | 46 | 829 | 0 | 35 | 170 | 0 | 252 | 322 | 0 |
| Turn Type | pm+pt | NA |  | pm+pt | NA |  | pm+pt | NA |  | pm+pt | NA |  |
| Protected Phases | 7 | 4 |  | 3 | 8 |  | 5 | 2 |  | 1 | 6 |  |
| Permitted Phases | 4 |  |  | 8 |  |  | 2 |  |  | 6 |  |  |
| Detector Phase | 7 | 4 |  | 3 | 8 |  | 5 | 2 |  | 1 | 6 |  |
| Switch Phase |  |  |  |  |  |  |  |  |  |  |  |  |
| Minimum Initial (s) | 4.0 | 7.0 |  | 4.0 | 7.0 |  | 4.0 | 7.0 |  | 4.0 | 7.0 |  |
| Minimum Split (s) | 8.5 | 26.5 |  | 8.5 | 26.5 |  | 8.5 | 26.5 |  | 8.5 | 26.5 |  |
| Total Split (s) | 8.5 | 26.5 |  | 8.5 | 26.5 |  | 8.5 | 26.5 |  | 8.5 | 26.5 |  |
| Total Split (\%) | 12.1\% | 37.9\% |  | 12.1\% | 37.9\% |  | 12.1\% | 37.9\% |  | 12.1\% | 37.9\% |  |
| Yellow Time (s) | 3.5 | 3.5 |  | 3.5 | 3.5 |  | 3.5 | 3.5 |  | 3.5 | 3.5 |  |
| All-Red Time (s) | 1.0 | 1.0 |  | 1.0 | 1.0 |  | 1.0 | 1.0 |  | 1.0 | 1.0 |  |
| Lost Time Adjust (s) | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 |  |
| Total Lost Time (s) | 4.5 | 4.5 |  | 4.5 | 4.5 |  | 4.5 | 4.5 |  | 4.5 | 4.5 |  |
| Lead/Lag | Lead | Lag |  | Lead | Lag |  | Lead | Lag |  | Lead | Lag |  |
| Lead-Lag Optimize? | Yes | Yes |  | Yes | Yes |  | Yes | Yes |  | Yes | Yes |  |
| Recall Mode | None | Min |  | None | Min |  | None | None |  | None | None |  |
| Act Effct Green (s) | 19.3 | 17.3 |  | 19.3 | 17.3 |  | 14.2 | 12.4 |  | 17.4 | 16.2 |  |
| Actuated g/C Ratio | 0.38 | 0.34 |  | 0.38 | 0.34 |  | 0.28 | 0.25 |  | 0.34 | 0.32 |  |
| v/c Ratio | 0.19 | 0.17 |  | 0.10 | 0.74 |  | 0.11 | 0.39 |  | 0.68 | 0.54 |  |
| Control Delay | 11.8 | 13.5 |  | 10.6 | 18.4 |  | 12.8 | 17.8 |  | 27.9 | 14.5 |  |
| Queue Delay | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 |  |
| Total Delay | 11.8 | 13.5 |  | 10.6 | 18.4 |  | 12.8 | 17.8 |  | 27.9 | 14.5 |  |
| LOS | B | B |  | B | B |  | B | B |  | C | B |  |
| Approach Delay |  | 13.1 |  |  | 17.9 |  |  | 16.9 |  |  | 20.4 |  |
| Approach LOS |  | B |  |  | B |  |  | B |  |  | C |  |
| Queue Length 50th (m) | 2.4 | 5.7 |  | 2.2 | 30.6 |  | 2.4 | 12.4 |  | 20.1 | 14.8 |  |

255 - Golden Ears Business Park
Creative Transportation Solutions Ltd.

Lanes, Volumes, Timings
1: Harris Road \& Airport Way


[^1]Synchro 10 Report
Creative Transportation Solutions Ltd.

|  |  |  |  |  |  |  |  | 4 |  |  |  | $\downarrow$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ${ }^{7}$ | 性 |  | ${ }^{7}$ | 性 |  | \% | $\hat{\beta}$ |  | \% | f |  |
| Traffic Volume (vph) | 51 | 161 | 19 | 44 | 495 | 347 | 36 | 124 | 88 | 335 | 111 | 191 |
| Future Volume (vph) | 51 | 161 | 19 | 44 | 495 | 347 | 36 | 124 | 88 | 335 | 111 | 191 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.1 | 3.3 | 3.3 | 3.1 | 3.3 | 3.3 | 3.1 | 3.3 | 3.3 | 3.1 | 3.3 | 3.3 |
| Storage Length ( m ) | 75.0 |  | 0.0 | 30.0 |  | 0.0 | 15.0 |  | 0.0 | 0.0 |  | 0.0 |
| Storage Lanes | 1 |  | 0 | 1 |  | 0 | 1 |  | 0 | 1 |  | 0 |
| Taper Length (m) | 7.5 |  |  | 7.5 |  |  | 7.5 |  |  | 7.5 |  |  |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt |  | 0.984 |  |  | 0.938 |  |  | 0.937 |  |  | 0.905 |  |
| Flt Protected | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  |
| Satd. Flow (prot) | 1624 | 3013 | 0 | 1624 | 2952 | 0 | 1624 | 1639 | 0 | 1624 | 1583 |  |
| FIt Permitted | 0.208 |  |  | 0.630 |  |  | 0.564 |  |  | 0.400 |  |  |
| Satd. Flow (perm) | 355 | 3013 | 0 | 1077 | 2952 | 0 | 964 | 1639 | 0 | 684 | 1583 |  |
| Right Turn on Red |  |  | Yes |  |  | Yes |  |  | Yes |  |  | es |
| Satd. Flow (RTOR) |  | 17 |  |  | 239 |  |  | 49 |  |  | 129 |  |
| Link Speed (k/h) |  | 50 |  |  | 50 |  |  | 50 |  |  | 50 |  |
| Link Distance (m) |  | 281.8 |  |  | 141.0 |  |  | 175.3 |  |  | 31.0 |  |
| Travel Time (s) |  | 20.3 |  |  | 10.2 |  |  | 12.6 |  |  | 2.2 |  |
| 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 (\%) | 5\% | 15\% | 5\% | 5\% | 15\% | 5\% | 5\% | 5\% | 5\% | 5\% | 5\% | 5\% |
| Shared Lane Traffic (\%) |  |  |  |  |  |  |  |  |  |  |  |  |
| Lane Group Flow (vph) | 55 | 193 | 0 | 47 | 905 | 0 | 39 | 228 | 0 | 360 | 324 | 0 |
| Turn Type | pm+pt | NA |  | pm+pt | NA |  | pm+pt | NA |  | pm+pt | NA |  |
| Protected Phases | 7 | , |  | 3 | 8 |  | 5 | 2 |  | 1 | 6 |  |
| Permitted Phases | 4 |  |  | 8 |  |  | 2 |  |  | 6 |  |  |
| Detector Phase | 7 | 4 |  | 3 | 8 |  | 5 | 2 |  | 1 | 6 |  |
| Switch Phase |  |  |  |  |  |  |  |  |  |  |  |  |
| Minimum Initial (s) | 4.0 | 7.0 |  | 4.0 | 7.0 |  | 4.0 | 7.0 |  | 4.0 | 7.0 |  |
| Minimum Split (s) | 8.5 | 26.5 |  | 8.5 | 26.5 |  | 8.5 | 26.5 |  | 8.5 | 26.5 |  |
| Total Split (s) | 8.5 | 26.5 |  | 8.5 | 26.5 |  | 8.5 | 27.0 |  | 13.0 | 31.5 |  |
| Total Split (\%) | 11.3\% | 35.3\% |  | 11.3\% | 35.3\% |  | 11.3\% | 36.0\% |  | 17.3\% | 42.0\% |  |
| Yellow Time (s) | 3.5 | 3.5 |  | 3.5 | 3.5 |  | 3.5 | 3.5 |  | 3.5 | 3.5 |  |
| All-Red Time (s) | 1.0 | 1.0 |  | 1.0 | 1.0 |  | 1.0 | 1.0 |  | 1.0 | 1.0 |  |
| Lost Time Adjust (s) | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 |  |
| Total Lost Time (s) | 4.5 | 4.5 |  | 4.5 | 4.5 |  | 4.5 | 4.5 |  | 4.5 | 4.5 |  |
| Lead/Lag | Lead | Lag |  | Lead | Lag |  | Lead | Lag |  | Lead | Lag |  |
| Lead-Lag Optimize? | Yes | Yes |  | Yes | Yes |  | Yes | Yes |  | Yes | Yes |  |
| Recall Mode | None | Min |  | None | Min |  | None | None |  | None | None |  |
| Act Effct Green (s) | 21.3 | 19.2 |  | 21.3 | 19.2 |  | 16.4 | 12.2 |  | 25.8 | 22.9 |  |
| Actuated g/C Ratio | 0.36 | 0.33 |  | 0.36 | 0.33 |  | 0.28 | 0.21 |  | 0.44 | 0.39 |  |
| v/c Ratio | 0.25 | 0.19 |  | 0.11 | 0.80 |  | 0.12 | 0.60 |  | 0.82 | 0.47 |  |
| Control Delay | 14.2 | 15.1 |  | 11.9 | 21.1 |  | 13.1 | 24.8 |  | 33.5 | 13.0 |  |
| Queue Delay | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 |  |
| Total Delay | 14.2 | 15.1 |  | 11.9 | 21.1 |  | 13.1 | 24.8 |  | 33.5 | 13.0 |  |
| LOS | B | B |  | B | C |  | B | C |  | C | B |  |
| Approach Delay |  | 14.9 |  |  | 20.7 |  |  | 23.1 |  |  | 23.8 |  |
| Approach LOS |  | B |  |  | C |  |  | C |  |  | C |  |
| Queue Length 50th (m) | 3.6 | 8.0 |  | 3.1 | 39.1 |  | 3.0 | 20.8 |  | 34.4 | 16.6 |  |

7255 - Golden Ears Business Park
Creative Transportation Solutions Ltd.

Lanes, Volumes, Timings
1: Harris Road \& Airport Way

|  | $\rangle$ |  |  | $\checkmark$ |  |  | 4 | $\dagger$ | $p$ |  | $\downarrow$ | $\downarrow$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Queue Length 95th (m) | 10.8 | 17.1 |  | 9.5 | \#79.9 |  | 8.0 | 41.0 |  | \#79.0 | 44.8 |  |
| Internal Link Dist (m) |  | 257.8 |  |  | 117.0 |  |  | 151.3 |  |  | 7.0 |  |
| Turn Bay Length (m) | 75.0 |  |  | 30.0 |  |  | 15.0 |  |  |  |  |  |
| Base Capacity (vph) | 218 | 1186 |  | 428 | 1297 |  | 315 | 683 |  | 441 | 825 |  |
| 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 | 0.16 |  | 0.11 | 0.70 |  | 0.12 | 0.33 |  | 0.82 | 0.39 |  |


\section*{| intersection Summary |
| :--- | :--- |
| Area Type: Othe | <br> Area Type:}

Cycle Length: 75
Actuated Cycle Length: 58.8
Actuated Cycle Len
Natural Cycle: 75
ontrol Type: Actuated-Uncoordinated
Maximum vic Ratio: 0.82
Itersection Capacity Utilization 73.
Intersection Capacity Utilization $73.6 \%$
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.


7255 - Golden Ears Business Park
Synchro 10 Report
Creative Transportation Solutions Ltd
Page 2

|  |  |  |  |  |  |  |  |  |  |  |  | $\downarrow$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | \％ | $\uparrow{ }_{\text {个 }}$ |  | \％ | 个 |  | \％ | 今 |  | \％ | F |  |
| Traffic Volume（vph） | 195 | 477 | 31 | 12 | 169 | 245 | 14 | 88 | 67 | 257 | 84 | 57 |
| Future Volume（vph） | 195 | 477 | 31 | 12 | 169 | 245 | 14 | 88 | 67 | 257 | 84 | 57 |
| Ideal Flow（vphpl） | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width（m） | 3.1 | 3.3 | 3.3 | 3.1 | 3.3 | 3.3 | 3.1 | 3.3 | 3.3 | 3.1 | 3.3 | 3.3 |
| Storage Length（m） | 75.0 |  | 0.0 | 30.0 |  | 0.0 | 15.0 |  | 0.0 | 0.0 |  | 0.0 |
| Storage Lanes | 1 |  | 0 | 1 |  | 0 | 1 |  | 0 | 1 |  | 0 |
| Taper Length（m） | 7.5 |  |  | 7.5 |  |  | 7.5 |  |  | 7.5 |  |  |
| Lane Util．Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt |  | 0.991 |  |  | 0.911 |  |  | 0.935 |  |  | 0.940 |  |
| FIt Protected | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  |
| Satd．Flow（prot） | 1624 | 3023 | 0 | 1624 | 2914 | 0 | 1624 | 1636 | 0 | 1624 | 1644 | 0 |
| FIt Permitted | 0.309 |  |  | 0.429 |  |  | 0.653 |  |  | 0.428 |  |  |
| Satd．Flow（perm） | 528 | 3023 | 0 | 733 | 2914 | 0 | 1116 | 1636 | 0 | 731 | 1644 | 0 |
| Right Turn on Red |  |  | Yes |  |  | Yes |  |  | Yes |  |  | Yes |
| Satd．Flow（RTOR） |  | 9 |  |  | 285 |  |  | 53 |  |  | 49 |  |
| Link Speed（k／h） |  | 50 |  |  | 50 |  |  | 50 |  |  | 50 |  |
| Link Distance（m） |  | 745.8 |  |  | 141.0 |  |  | 178.2 |  |  | 32.3 |  |
| Travel Time（s） |  | 53.7 |  |  | 10.2 |  |  | 12.8 |  |  | 2.3 |  |
| Peak Hour Factor | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Heavy Vehicles（\％） | 5\％ | 15\％ | 5\％ | 5\％ | 15\％ | 5\％ | 5\％ | 5\％ | 5\％ | 5\％ | 5\％ | 5\％ |
| Shared Lane Traffic（\％） |  |  |  |  |  |  |  |  |  |  |  |  |
| Lane Group Flow（vph） | 227 | 591 | 0 | 14 | 482 | 0 | 16 | 180 | 0 | 299 | 164 | 0 |
| Turn Type | pm＋pt | NA |  | pm＋pt | NA |  | pm＋pt | NA |  | pm＋pt | NA |  |
| Protected Phases | 7 | 4 |  | 3 | 8 |  | 5 | 2 |  | 1 | 6 |  |
| Permitted Phases | 4 |  |  | 8 |  |  | 2 |  |  | 6 |  |  |
| Detector Phase | 7 | 4 |  | 3 | 8 |  | 5 | 2 |  | 1 | 6 |  |
| Switch Phase |  |  |  |  |  |  |  |  |  |  |  |  |
| Minimum Initial（s） | 4.0 | 7.0 |  | 4.0 | 7.0 |  | 4.0 | 7.0 |  | 4.0 | 7.0 |  |
| Minimum Split（s） | 8.5 | 26.5 |  | 8.5 | 26.5 |  | 8.5 | 26.5 |  | 8.5 | 26.5 |  |
| Total Split（s） | 10.0 | 28.0 |  | 8.5 | 26.5 |  | 8.5 | 27.5 |  | 11.0 | 30.0 |  |
| Total Split（\％） | 13．3\％ | 37．3\％ |  | 11．3\％ | 35．3\％ |  | 11．3\％ | 36．7\％ |  | 14．7\％ | 40．0\％ |  |
| Yellow Time（s） | 3.5 | 3.5 |  | 3.5 | 3.5 |  | 3.5 | 3.5 |  | 3.5 | 3.5 |  |
| All－Red Time（s） | 1.0 | 1.0 |  | 1.0 | 1.0 |  | 1.0 | 1.0 |  | 1.0 | 1.0 |  |
| Lost Time Adjust（s） | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 |  |
| Total Lost Time（s） | 4.5 | 4.5 |  | 4.5 | 4.5 |  | 4.5 | 4.5 |  | 4.5 | 4.5 |  |
| Lead／Lag | Lead | Lag |  | Lead | Lag |  | Lead | Lag |  | Lead | Lag |  |
| Lead－Lag Optimize？ | Yes | Yes |  | Yes | Yes |  | Yes | Yes |  | Yes | Yes |  |
| Recall Mode | None | Min |  | None | Min |  | None | None |  | None | None |  |
| Act Effct Green（s） | 20.8 | 20.0 |  | 14.9 | 10.7 |  | 12.1 | 9.9 |  | 18.0 | 17.0 |  |
| Actuated g／C Ratio | 0.42 | 0.41 |  | 0.30 | 0.22 |  | 0.25 | 0.20 |  | 0.37 | 0.35 |  |
| v／c Ratio | 0.64 | 0.48 |  | 0.05 | 0.56 |  | 0.05 | 0.48 |  | 0.76 | 0.27 |  |
| Control Delay | 22.6 | 14.0 |  | 10.1 | 10.2 |  | 11.4 | 19.1 |  | 28.7 | 11.4 |  |
| Queue Delay | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 |  |
| Total Delay | 22.6 | 14.0 |  | 10.1 | 10.2 |  | 11.4 | 19.1 |  | 28.7 | 11.4 |  |
| LOS | C | B |  | B | B |  | B | B |  | C | B |  |
| Approach Delay |  | 16.4 |  |  | 10.2 |  |  | 18.4 |  |  | 22.6 |  |
| Approach LOS |  | B |  |  | B |  |  | B |  |  | C |  |
| Queue Length 50th（m） | 13.6 | 19.5 |  | 0.7 | 8.2 |  | 0.8 | 10.1 |  | 17.9 | 6.0 |  |

7255 －Golden Ears Business Park
Creative Transportation Solutions Ltd．

Lanes，Volumes，Timings
1：Harris Road \＆Airport Way
Timing Plan：Wkday PM Peak H


7255 －Golden Ears Business Park
Synchro 10 Report
Creative Transportation Solutions Ltd．

|  |  |  |  |  |  |  |  |  |  |  |  | $\downarrow$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | \% | $\uparrow{ }_{\text {个 }}$ |  | \% |  |  | \% | F |  | \% | ¢ |  |
| Traffic Volume (vph) | 196 | 482 | 31 | 15 | 174 | 281 | 28 | 153 | 137 | 339 | 90 | 62 |
| Future Volume (vph) | 196 | 482 | 31 | 15 | 174 | 281 | 28 | 153 | 137 | 339 | 90 | 62 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.1 | 3.3 | 3.3 | 3.1 | 3.3 | 3.3 | 3.1 | 3.3 | 3.3 | 3.1 | 3.3 | 3.3 |
| Storage Length (m) | 75.0 |  | 0.0 | 30.0 |  | 0.0 | 15.0 |  | 0.0 | 0.0 |  | 0.0 |
| Storage Lanes | 1 |  | 0 | 1 |  | 0 | 1 |  | 0 | 1 |  | 0 |
| Taper Length (m) | 7.5 |  |  | 7.5 |  |  | 7.5 |  |  | 7.5 |  |  |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt |  | 0.991 |  |  | 0.907 |  |  | 0.929 |  |  | 0.939 |  |
| FIt Protected | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  |
| Satd. Flow (prot) | 1624 | 3023 | 0 | 1624 | 2909 | 0 | 1624 | 1625 | 0 | 1624 | 1643 | 0 |
| FIt Permitted | 0.195 |  |  | 0.427 |  |  | 0.646 |  |  | 0.257 |  |  |
| Satd. Flow (perm) | 333 | 3023 | 0 | 730 | 2909 | 0 | 1104 | 1625 | 0 | 439 | 1643 | 0 |
| Right Turn on Red |  |  | Yes |  |  | Yes |  |  | Yes |  |  | Yes |
| Satd. Flow (RTOR) |  | 7 |  |  | 327 |  |  | 49 |  |  | 46 |  |
| Link Speed (k/h) |  | 50 |  |  | 50 |  |  | 50 |  |  | 50 |  |
| Link Distance (m) |  | 745.8 |  |  | 141.0 |  |  | 178.2 |  |  | 32.3 |  |
| Travel Time (s) |  | 53.7 |  |  | 10.2 |  |  | 12.8 |  |  | 2.3 |  |
| Peak Hour Factor | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Heavy Vehicles (\%) | 5\% | 15\% | 5\% | 5\% | 15\% | 5\% | 5\% | 5\% | 5\% | 5\% | 5\% | 5\% |
| Shared Lane Traffic (\%) |  |  |  |  |  |  |  |  |  |  |  |  |
| Lane Group Flow (vph) | 228 | 596 | 0 | 17 | 529 | 0 | 33 | 337 | 0 | 394 | 177 | 0 |
| Turn Type | pm+pt | NA |  | pm+pt | NA |  | pm+pt | NA |  | pm+pt | NA |  |
| Protected Phases | 7 | 4 |  | 3 | 8 |  | 5 | 2 |  | 1 | 6 |  |
| Permitted Phases | 4 |  |  | 8 |  |  | 2 |  |  | 6 |  |  |
| Detector Phase | 7 | 4 |  | 3 | 8 |  | 5 | 2 |  | 1 | 6 |  |
| Switch Phase |  |  |  |  |  |  |  |  |  |  |  |  |
| Minimum Initial (s) | 4.0 | 7.0 |  | 4.0 | 7.0 |  | 4.0 | 7.0 |  | 4.0 | 7.0 |  |
| Minimum Split (s) | 8.5 | 26.5 |  | 8.5 | 26.5 |  | 8.5 | 26.5 |  | 8.5 | 26.5 |  |
| Total Split (s) | 14.0 | 32.0 |  | 8.5 | 26.5 |  | 8.5 | 28.5 |  | 21.0 | 41.0 |  |
| Total Split (\%) | 15.6\% | 35.6\% |  | 9.4\% | 29.4\% |  | 9.4\% | 31.7\% |  | 23.3\% | 45.6\% |  |
| Yellow Time (s) | 3.5 | 3.5 |  | 3.5 | 3.5 |  | 3.5 | 3.5 |  | 3.5 | 3.5 |  |
| All-Red Time (s) | 1.0 | 1.0 |  | 1.0 | 1.0 |  | 1.0 | 1.0 |  | 1.0 | 1.0 |  |
| Lost Time Adjust (s) | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 |  |
| Total Lost Time (s) | 4.5 | 4.5 |  | 4.5 | 4.5 |  | 4.5 | 4.5 |  | 4.5 | 4.5 |  |
| Lead/Lag | Lead | Lag |  | Lead | Lag |  | Lead | Lag |  | Lead | Lag |  |
| Lead-Lag Optimize? | Yes | Yes |  | Yes | Yes |  | Yes | Yes |  | Yes | Yes |  |
| Recall Mode | None | Min |  | None | Min |  | None | None |  | None | None |  |
| Act Effct Green (s) | 27.5 | 24.6 |  | 17.2 | 13.1 |  | 22.3 | 18.1 |  | 38.9 | 36.0 |  |
| Actuated g/C Ratio | 0.36 | 0.33 |  | 0.23 | 0.17 |  | 0.29 | 0.24 |  | 0.51 | 0.48 |  |
| v/c Ratio | 0.79 | 0.60 |  | 0.08 | 0.68 |  | 0.09 | 0.79 |  | 0.82 | 0.22 |  |
| Control Delay | 42.3 | 25.9 |  | 18.0 | 16.0 |  | 12.8 | 38.1 |  | 30.3 | 11.3 |  |
| Queue Delay | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 |  |
| Total Delay | 42.3 | 25.9 |  | 18.0 | 16.0 |  | 12.8 | 38.1 |  | 30.3 | 11.3 |  |
| LOS | D | C |  | B | B |  | B | D |  | C | B |  |
| Approach Delay |  | 30.4 |  |  | 16.1 |  |  | 35.8 |  |  | 24.4 |  |
| Approach LOS |  | C |  |  | B |  |  | D |  |  | C |  |
| Queue Length 50th (m) | 25.2 | 36.5 |  | 1.6 | 14.4 |  | 2.1 | 39.0 |  | 32.6 | 8.9 |  |

255 - Golden Ears Business Park
Creative Transportation Solutions Ltd.

Lanes, Volumes, Timings
1: Harris Road \& Airport Way

|  |  |  |  | $\checkmark$ |  |  | 4 | $\uparrow$ | $p$ |  | $\downarrow$ | $\downarrow$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Queue Length 95th (m) | \#55.2 | 63.0 |  | 5.7 | 28.3 |  | 7.3 | 74.1 |  | \#87.1 | 27.7 |  |
| Internal Link Dist (m) |  | 721.8 |  |  | 117.0 |  |  | 154.2 |  |  | 8.3 |  |
| Turn Bay Length (m) | 75.0 |  |  | 30.0 |  |  | 15.0 |  |  |  |  |  |
| Base Capacity (vph) | 287 | 1132 |  | 214 | 1097 |  | 353 | 562 |  | 491 | 850 |  |
| 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 | 0.79 | 0.53 |  | 0.08 | 0.48 |  | 0.09 | 0.60 |  | 0.80 | 0.21 |  |


\section*{| intersection Summary |
| :--- | :--- |
| Area Type: Othe | <br> Area Type:

Cycle Length: 90}

Actuated Cycle Length: 75.6
Natural Cycle: 90
ontrol Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.82
Intersection LOS: C
ICU Level of Service D
Queuercentile volume exceeds capacity, queue may be longer
Queue shown is maximum after two cycles.


[^2]Synchro 10 Report
Creative Transportation Solutions Ltd

|  |  |  |  |  |  |  |  | $\uparrow$ |  |  |  | $\checkmark$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | \% | 个t |  | ${ }^{7}$ | 个t |  | \% | $\hat{\beta}$ |  | ${ }^{7}$ | f |  |
| Traffic Volume (vph) | 233 | 570 | 38 | 16 | 203 | 294 | 17 | 104 | 80 | 306 | 101 | 68 |
| Future Volume (vph) | 233 | 570 | 38 | 16 | 203 | 294 | 17 | 104 | 80 | 306 | 101 | 68 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.1 | 3.3 | 3.3 | 3.1 | 3.3 | 3.3 | 3.1 | 3.3 | 3.3 | 3.1 | 3.3 | 3.3 |
| Storage Length ( m ) | 75.0 |  | 0.0 | 30.0 |  | 0.0 | 15.0 |  | 0.0 | 0.0 |  | 0.0 |
| Storage Lanes | 1 |  | 0 | 1 |  | 0 | 1 |  | 0 | 1 |  | 0 |
| Taper Length (m) | 7.5 |  |  | 7.5 |  |  | 7.5 |  |  | 7.5 |  |  |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt |  | 0.991 |  |  | 0.911 |  |  | 0.935 |  |  | 0.940 |  |
| Flt Protected | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  |
| Satd. Flow (prot) | 1624 | 3024 | 0 | 1624 | 2914 | 0 | 1624 | 1636 | 0 | 1624 | 1644 | 0 |
| Flt Permitted | 0.196 |  |  | 0.383 |  |  | 0.634 |  |  | 0.380 |  |  |
| Satd. Flow (perm) | 335 | 3024 | 0 | 655 | 2914 | 0 | 1084 | 1636 | 0 | 649 | 1644 | 0 |
| Right Turn on Red |  |  | Yes |  |  | Yes |  |  | Yes |  |  | Yes |
| Satd. Flow (RTOR) |  | 8 |  |  | 342 |  |  | 41 |  |  | 42 |  |
| Link Speed (k/h) |  | 50 |  |  | 50 |  |  | 50 |  |  | 50 |  |
| Link Distance (m) |  | 745.8 |  |  | 141.0 |  |  | 178.2 |  |  | 32.3 |  |
| Travel Time (s) |  | 53.7 |  |  | 10.2 |  |  | 12.8 |  |  | 2.3 |  |
| Peak Hour Factor | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Heavy Vehicles (\%) | 5\% | 15\% | 5\% | 5\% | 15\% | 5\% | 5\% | 5\% | 5\% | 5\% | 5\% | 5\% |
| Shared Lane Traffic (\%) |  |  |  |  |  |  |  |  |  |  |  |  |
| Lane Group Flow (vph) | 271 | 707 | 0 | 19 | 578 | 0 | 20 | 214 | 0 | 356 | 196 | 0 |
| Turn Type | pm+pt | NA |  | pm+pt | NA |  | pm+pt | NA |  | pm+pt | NA |  |
| Protected Phases | 7 | 4 |  | 3 | 8 |  | 5 | 2 |  | 1 | 6 |  |
| Permitted Phases | 4 |  |  | 8 |  |  | 2 |  |  | 6 |  |  |
| Detector Phase | 7 | 4 |  | 3 | 8 |  | 5 | 2 |  | 1 | 6 |  |
| Switch Phase |  |  |  |  |  |  |  |  |  |  |  |  |
| Minimum Initial (s) | 4.0 | 7.0 |  | 4.0 | 7.0 |  | 4.0 | 7.0 |  | 4.0 | 7.0 |  |
| Minimum Split (s) | 8.5 | 26.5 |  | 8.5 | 26.5 |  | 8.5 | 26.5 |  | 8.5 | 26.5 |  |
| Total Split (s) | 18.0 | 36.0 |  | 8.5 | 26.5 |  | 8.5 | 27.5 |  | 18.0 | 37.0 |  |
| Total Split (\%) | 20.0\% | 40.0\% |  | 9.4\% | 29.4\% |  | 9.4\% | 30.6\% |  | 20.0\% | 41.1\% |  |
| Yellow Time (s) | 3.5 | 3.5 |  | 3.5 | 3.5 |  | 3.5 | 3.5 |  | 3.5 | 3.5 |  |
| All-Red Time (s) | 1.0 | 1.0 |  | 1.0 | 1.0 |  | 1.0 | 1.0 |  | 1.0 | 1.0 |  |
| Lost Time Adjust (s) | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 |  |
| Total Lost Time (s) | 4.5 | 4.5 |  | 4.5 | 4.5 |  | 4.5 | 4.5 |  | 4.5 | 4.5 |  |
| Lead/Lag | Lead | Lag |  | Lead | Lag |  | Lead | Lag |  | Lead | Lag |  |
| Lead-Lag Optimize? | Yes | Yes |  | Yes | Yes |  | Yes | Yes |  | Yes | Yes |  |
| Recall Mode | None | Min |  | None | Min |  | None | None |  | None | None |  |
| Act Effct Green (s) | 30.4 | 27.5 |  | 16.9 | 12.7 |  | 17.2 | 13.0 |  | 30.8 | 27.9 |  |
| Actuated g/C Ratio | 0.43 | 0.39 |  | 0.24 | 0.18 |  | 0.24 | 0.18 |  | 0.44 | 0.40 |  |
| v/c Ratio | 0.71 | 0.60 |  | 0.09 | 0.72 |  | 0.07 | 0.64 |  | 0.77 | 0.29 |  |
| Control Delay | 27.1 | 21.0 |  | 14.9 | 16.6 |  | 14.6 | 31.5 |  | 28.9 | 15.0 |  |
| Queue Delay | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 |  |
| Total Delay | 27.1 | 21.0 |  | 14.9 | 16.6 |  | 14.6 | 31.5 |  | 28.9 | 15.0 |  |
| LOS | C | C |  | B | B |  | B | C |  | C | B |  |
| Approach Delay |  | 22.7 |  |  | 16.5 |  |  | 30.0 |  |  | 24.0 |  |
| Approach LOS |  | C |  |  | B |  |  | C |  |  | C |  |
| Queue Length 50th (m) | 24.4 | 36.0 |  | 1.5 | 15.5 |  | 1.5 | 21.8 |  | 33.1 | 12.4 |  |

7255 - Golden Ears Business Park
Creative Transportation Solutions Ltd.

Lanes, Volumes, Timings
1: Harris Road \& Airport Way
Timing Plan: Wkday PM Peak H


[^3]Synchro 10 Report
Creative Transportation Solutions Ltd.

|  |  |  |  |  |  |  |  | $\uparrow$ |  |  |  | $\downarrow$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ${ }^{*}$ | 性 |  | ${ }^{7}$ | 个家 |  | \％ | 今 |  | \％ | ¢ |  |
| Traffic Volume（vph） | 234 | 575 | 38 | 18 | 208 | 330 | 29 | 169 | 150 | 388 | 107 | 73 |
| Future Volume（vph） | 234 | 575 | 38 | 18 | 208 | 330 | 29 | 169 | 150 | 388 | 107 | 73 |
| Ideal Flow（vphpl） | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width（m） | 3.1 | 3.3 | 3.3 | 3.1 | 3.3 | 3.3 | 3.1 | 3.3 | 3.3 | 3.1 | 3.3 | 3.3 |
| Storage Length（ m ） | 75.0 |  | 0.0 | 30.0 |  | 0.0 | 15.0 |  | 0.0 | 0.0 |  | 0.0 |
| Storage Lanes | 1 |  | 0 | 1 |  | 0 | 1 |  | 0 | 1 |  | 0 |
| Taper Length（m） | 7.5 |  |  | 7.5 |  |  | 7.5 |  |  | 7.5 |  |  |
| Lane Util．Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt |  | 0.991 |  |  | 0.908 |  |  | 0.930 |  |  | 0.939 |  |
| Flt Protected | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  |
| Satd．Flow（prot） | 1624 | 3023 | 0 | 1624 | 2911 | 0 | 1624 | 1627 | 0 | 1624 | 1643 |  |
| FIt Permitted | 0.182 |  |  | 0.327 |  |  | 0.627 |  |  | 0.204 |  |  |
| Satd．Flow（perm） | 311 | 3023 | 0 | 559 | 2911 | 0 | 1072 | 1627 | 0 | 349 | 1643 |  |
| Right Turn on Red |  |  | Yes |  |  | Yes |  |  | Yes |  |  | es |
| Satd．Flow（RTOR） |  |  |  |  | 384 |  |  | 47 |  |  | 46 |  |
| Link Speed（k／h） |  | 50 |  |  | 50 |  |  | 50 |  |  | 50 |  |
| Link Distance（m） |  | 745.8 |  |  | 141.0 |  |  | 178.2 |  |  | 32.3 |  |
| Travel Time（s） |  | 53.7 |  |  | 10.2 |  |  | 12.8 |  |  | 2.3 |  |
| Peak Hour Factor | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Heavy Vehicles（\％） | 5\％ | 15\％ | 5\％ | 5\％ | 15\％ | 5\％ | 5\％ | 5\％ | 5\％ | 5\％ | 5\％ | 5\％ |
| Shared Lane Traffic（\％） |  |  |  |  |  |  |  |  |  |  |  |  |
| Lane Group Flow（vph） | 272 | 713 | 0 | 21 | 626 | 0 | 34 | 371 | 0 | 451 | 209 | 0 |
| Turn Type | pm＋pt | NA |  | pm＋pt | NA |  | pm＋pt | NA |  | pm＋pt | NA |  |
| Protected Phases | 7 | ， |  | 3 | 8 |  | 5 | 2 |  | 1 | 6 |  |
| Permitted Phases | 4 |  |  | 8 |  |  | 2 |  |  | 6 |  |  |
| Detector Phase | 7 | 4 |  | 3 | 8 |  | 5 | 2 |  | 1 | 6 |  |
| Switch Phase |  |  |  |  |  |  |  |  |  |  |  |  |
| Minimum Initial（s） | 4.0 | 7.0 |  | 4.0 | 7.0 |  | 4.0 | 7.0 |  | 4.0 | 7.0 |  |
| Minimum Split（s） | 8.5 | 26.5 |  | 8.5 | 26.5 |  | 8.5 | 26.5 |  | 8.5 | 26.5 |  |
| Total Split（s） | 14.4 | 32.4 |  | 8.5 | 26.5 |  | 8.5 | 27.1 |  | 22.0 | 40.6 |  |
| Total Split（\％） | 16．0\％ | 36．0\％ |  | 9．4\％ | 29．4\％ |  | 9．4\％ | 30．1\％ |  | 24．4\％ | 45．1\％ |  |
| Yellow Time（s） | 3.5 | 3.5 |  | 3.5 | 3.5 |  | 3.5 | 3.5 |  | 3.5 | 3.5 |  |
| All－Red Time（s） | 1.0 | 1.0 |  | 1.0 | 1.0 |  | 1.0 | 1.0 |  | 1.0 | 1.0 |  |
| Lost Time Adjust（s） | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 |  |
| Total Lost Time（s） | 4.5 | 4.5 |  | 4.5 | 4.5 |  | 4.5 | 4.5 |  | 4.5 | 4.5 |  |
| Lead／Lag | Lead | Lag |  | Lead | Lag |  | Lead | Lag |  | Lead | Lag |  |
| Lead－Lag Optimize？ | Yes | Yes |  | Yes | Yes |  | Yes | Yes |  | Yes | Yes |  |
| Recall Mode | None | Min |  | None | Min |  | None | None |  | None | None |  |
| Act Effct Green（s） | 29.1 | 26.1 |  | 18.5 | 14.5 |  | 23.9 | 19.9 |  | 42.2 | 37.5 |  |
| Actuated g／C Ratio | 0.36 | 0.32 |  | 0.23 | 0.18 |  | 0.30 | 0.25 |  | 0.52 | 0.47 |  |
| v／c Ratio | 0.99 | 0.72 |  | 0.12 | 0.75 |  | 0.10 | 0.85 |  | 0.97 | 0.26 |  |
| Control Delay | 76.1 | 29.7 |  | 18.6 | 17.5 |  | 13.6 | 45.6 |  | 57.1 | 13.4 |  |
| Queue Delay | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 |  |
| Total Delay | 76.1 | 29.7 |  | 18.6 | 17.5 |  | 13.6 | 45.6 |  | 57.1 | 13.4 |  |
| LOS | E | C |  | B | B |  | B | D |  | E | B |  |
| Approach Delay |  | 42.5 |  |  | 17.5 |  |  | 42.9 |  |  | 43.2 |  |
| Approach LOS |  | D |  |  | B |  |  | D |  |  | D |  |
| Queue Length 50th（m） | $\sim 35.7$ | 51.3 |  | 2.3 | 19.1 |  | 2.4 | 48.9 |  | 51.9 | 16.0 |  |

255 －Golden Ears Business Park
Creative Transportation Solutions Ltd．

Lanes，Volumes，Timings
1：Harris Road \＆Airport Way


\section*{| intersection Summary |
| :--- | :--- |
| rea Type：Other | <br> Area Type：

Cycle Length： 90}

Actuated Cycle Length： 80.4
Natural Cycle： 90
ontrol Type：Actuated－Uncoordinated
Intersection Signal Delay 36.8
Intersection LOS：D
Analysis Period（min） 15
～Volume exceeds capacity，queue is theoretically infinite
Queue shown is maximum after two cycles．
\＃95th percentile volume exceeds capacity，queue may be longer
Queue shown is maximum after two cycles．


[^4]Synchro 10 Report
Creative Transportation Solutions Ltd

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Lane Configurations | ${ }^{7}$ | 个 ${ }_{\text {d }}$ |  | \％ | 个家 |  | \％ | F |  | \％ | $\hat{\beta}$ |  |
| Traffic Volume（vph） | 34 | 312 | 21 | 106 | 551 | 139 | 34 | 109 | 191 | 186 | 50 | 93 |
| Future Volume（vph） | 34 | 312 | 21 | 106 | 551 | 139 | 34 | 109 | 191 | 186 | 50 | 93 |
| Ideal Flow（vphpl） | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length（m） | 60.0 |  | 0.0 | 60.0 |  | 0.0 | 15.0 |  | 0.0 | 60.0 |  | 0.0 |
| Storage Lanes | 1 |  | 0 | 1 |  | 0 | 1 |  | 0 | 1 |  |  |
| Taper Length（m） | 7.5 |  |  | 7.5 |  |  | 7.5 |  |  | 7.5 |  |  |
| Lane Util．Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 |  | 0.99 | 1.00 |  | 0.99 | 0.99 |  | 1.00 | 0.99 |  |
| Frt |  | 0.990 |  |  | 0.970 |  |  | 0.905 |  |  | 0.903 |  |
| Flt Protected | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  |
| Satd．Flow（prot） | 1770 | 3124 | 0 | 1770 | 3102 | 0 | 1770 | 1671 | 0 | 1770 | 1660 | 0 |
| Flt Permitted | 0.279 |  |  | 0.482 |  |  | 0.659 |  |  | 0.265 |  |  |
| Satd．Flow（perm） | 519 | 3124 | 0 | 891 | 3102 | 0 | 1219 | 1671 | 0 | 493 | 1660 |  |
| Right Turn on Red |  |  | Yes |  |  | Yes |  |  | Yes |  |  | Yes |
| Satd．Flow（RTOR） |  | 10 |  |  | 44 |  |  | 124 |  |  | 100 |  |
| Link Speed（k／h） |  | 50 |  |  | 50 |  |  | 50 |  |  | 50 |  |
| Link Distance（m） |  | 390.6 |  |  | 379.9 |  |  | 225.7 |  |  | 216.1 |  |
| Travel Time（s） |  | 28.1 |  |  | 27.4 |  |  | 16.3 |  |  | 15.6 |  |
| Confl．Peds．（\＃／hr） | 1 |  | 8 | 8 |  | 1 | 9 |  | 1 | 1 |  |  |
| Confl．Bikes（\＃／hr） |  |  | 1 |  |  |  |  |  | 1 |  |  |  |
| 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（\％） | 2\％ | 15\％ | 2\％ | 2\％ | 15\％ | 2\％ | 2\％ | 2\％ | 2\％ | 2\％ | 2\％ | 2\％ |
| Shared Lane Traffic（\％） |  |  |  |  |  |  |  |  |  |  |  |  |
| Lane Group Flow（vph） | 37 | 358 | 0 | 114 | 741 | 0 | 37 | 322 | 0 | 200 | 154 |  |
| Turn Type | pm＋pt | NA |  | pm＋pt | NA |  | Perm | NA |  | pm＋pt | NA |  |
| Protected Phases | 7 | 4 |  | 3 | 8 |  |  | 2 |  | 1 | 6 |  |
| Permitted Phases | 4 |  |  | 8 |  |  | 2 |  |  | 6 |  |  |
| Detector Phase | 7 | 4 |  | 3 | 8 |  | 2 | 2 |  | 1 | 6 |  |
| Switch Phase |  |  |  |  |  |  |  |  |  |  |  |  |
| Minimum Initial（s） | 4.0 | 7.0 |  | 4.0 | 7.0 |  | 7.0 | 7.0 |  | 4.0 | 7.0 |  |
| Minimum Split（s） | 8.5 | 28.5 |  | 8.5 | 28.5 |  | 28.5 | 28.5 |  | 8.5 | 28.5 |  |
| Total Split（s） | 8.5 | 28.5 |  | 8.5 | 28.5 |  | 28.5 | 28.5 |  | 9.5 | 38.0 |  |
| Total Split（\％） | 11．3\％ | 38．0\％ |  | 11．3\％ | 38．0\％ |  | 38．0\％ | 38．0\％ |  | 12．7\％ | 50．7\％ |  |
| Yellow Time（s） | 3.5 | 3.5 |  | 3.5 | 3.5 |  | 3.5 | 3.5 |  | 3.5 | 3.5 |  |
| All－Red Time（s） | 1.0 | 1.0 |  | 1.0 | 1.0 |  | 1.0 | 1.0 |  | 1.0 | 1.0 |  |
| Lost Time Adjust（s） | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 |  |
| Total Lost Time（s） | 4.5 | 4.5 |  | 4.5 | 4.5 |  | 4.5 | 4.5 |  | 4.5 | 4.5 |  |
| Lead／Lag | Lead | Lag |  | Lead | Lag |  | Lag | Lag |  | Lead |  |  |
| Lead－Lag Optimize？ | Yes | Yes |  | Yes | Yes |  | Yes | Yes |  | Yes |  |  |
| Recall Mode | None | Min |  | None | Min |  | None | None |  | None | None |  |
| Act Effct Green（s） | 18.0 | 14.9 |  | 20.0 | 18.8 |  | 13.0 | 13.0 |  | 23.1 | 23.1 |  |
| Actuated g／C Ratio | 0.33 | 0.28 |  | 0.37 | 0.35 |  | 0.24 | 0.24 |  | 0.43 | 0.43 |  |
| v／c Ratio | 0.14 | 0.41 |  | 0.29 | 0.67 |  | 0.13 | 0.65 |  | 0.60 | 0.20 |  |
| Control Delay | 11.8 | 18.0 |  | 13.2 | 18.8 |  | 19.2 | 19.1 |  | 22.1 | 6.1 |  |
| Queue Delay | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 |  |
| Total Delay | 11.8 | 18.0 |  | 13.2 | 18.8 |  | 19.2 | 19.1 |  | 22.1 | 6.1 |  |
| LOS | B | B |  | B | B |  | B | B |  | C | A |  |
| Approach Delay |  | 17.4 |  |  | 18.1 |  |  | 19.2 |  |  | 15.1 |  |

7255 －Golden Ears Business Park
Creative Transportation Solutions Ltd．

Lanes，Volumes，Timings
2024 Base
13：Bonson Road \＆Airport Way
Timing Plan：Wkday AM Peak H


[^5]Synchro 10 Report
Creative Transportation Solutions Ltd．
Page 2

|  |  |  |  |  |  |  |  |  |  |  |  | $\downarrow$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | \% | $\uparrow{ }_{\text {个 }}$ |  | \% |  |  | \% | $\uparrow$ | 「 | \% | F |  |
| Traffic Volume (vph) | 196 | 482 | 31 | 15 | 174 | 281 | 26 | 153 | 137 | 339 | 90 | 62 |
| Future Volume (vph) | 196 | 482 | 31 | 15 | 174 | 281 | 26 | 153 | 137 | 339 | 90 | 62 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (m) | 3.1 | 3.3 | 3.3 | 3.1 | 3.3 | 3.3 | 3.1 | 3.3 | 3.3 | 3.1 | 3.3 | 3.3 |
| Storage Length (m) | 75.0 |  | 0.0 | 30.0 |  | 0.0 | 15.0 |  | 60.0 | 0.0 |  | 0.0 |
| Storage Lanes | 1 |  | 0 | 1 |  | 0 | 1 |  | 1 | 1 |  | 0 |
| Taper Length (m) | 7.5 |  |  | 7.5 |  |  | 7.5 |  |  | 7.5 |  |  |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt |  | 0.991 |  |  | 0.907 |  |  |  | 0.850 |  | 0.939 |  |
| FIt Protected | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  |
| Satd. Flow (prot) | 1624 | 3023 | 0 | 1624 | 2909 | 0 | 1624 | 1749 | 1487 | 1624 | 1643 | 0 |
| FIt Permitted | 0.247 |  |  | 0.427 |  |  | 0.646 |  |  | 0.454 |  |  |
| Satd. Flow (perm) | 422 | 3023 | - | 730 | 2909 | 0 | 1104 | 1749 | 1487 | 776 | 1643 | 0 |
| Right Turn on Red |  |  | Yes |  |  | Yes |  |  | Yes |  |  | Yes |
| Satd. Flow (RTOR) |  | 8 |  |  | 327 |  |  |  | 205 |  | 49 |  |
| Link Speed (k/h) |  | 50 |  |  | 50 |  |  | 50 |  |  | 50 |  |
| Link Distance (m) |  | 745.8 |  |  | 141.0 |  |  | 178.2 |  |  | 32.3 |  |
| Travel Time (s) |  | 53.7 |  |  | 10.2 |  |  | 12.8 |  |  | 2.3 |  |
| Peak Hour Factor | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Heavy Vehicles (\%) | 5\% | 15\% | 5\% | 5\% | 15\% | 5\% | 5\% | 5\% | 5\% | 5\% | 5\% | 5\% |
| Shared Lane Traffic (\%) |  |  |  |  |  |  |  |  |  |  |  |  |
| Lane Group Flow (vph) | 228 | 596 | 0 | 17 | 529 | 0 | 30 | 178 | 159 | 394 | 177 | 0 |
| Turn Type | pm+pt | NA |  | pm+pt | NA |  | pm+pt | NA | Perm | pm+pt | NA |  |
| Protected Phases | 7 | 4 |  | 3 | 8 |  | 5 | 2 |  | 1 | 6 |  |
| Permitted Phases | 4 |  |  | 8 |  |  | 2 |  | 2 | 6 |  |  |
| Detector Phase | 7 | 4 |  | 3 | 8 |  | 5 | 2 | 2 | 1 | 6 |  |
| Switch Phase |  |  |  |  |  |  |  |  |  |  |  |  |
| Minimum Initial (s) | 4.0 | 7.0 |  | 4.0 | 7.0 |  | 4.0 | 7.0 | 7.0 | 4.0 | 7.0 |  |
| Minimum Split (s) | 8.5 | 26.5 |  | 8.5 | 26.5 |  | 8.5 | 26.5 | 26.5 | 8.5 | 26.5 |  |
| Total Split (s) | 11.0 | 29.0 |  | 8.5 | 26.5 |  | 8.5 | 27.5 | 27.5 | 15.0 | 34.0 |  |
| Total Split (\%) | 13.8\% | 36.3\% |  | 10.6\% | 33.1\% |  | 10.6\% | 34.4\% | 34.4\% | 18.8\% | 42.5\% |  |
| Yellow Time (s) | 3.5 | 3.5 |  | 3.5 | 3.5 |  | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 |  |
| All-Red Time (s) | 1.0 | 1.0 |  | 1.0 | 1.0 |  | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |  |
| Lost Time Adjust (s) | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |  |
| Total Lost Time (s) | 4.5 | 4.5 |  | 4.5 | 4.5 |  | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |  |
| Lead/Lag | Lead | Lag |  | Lead | Lag |  | Lead | Lag | Lag | Lead | Lag |  |
| Lead-Lag Optimize? | Yes | Yes |  | Yes | Yes |  | Yes | Yes | Yes | Yes | Yes |  |
| Recall Mode | None | Min |  | None | Min |  | None | None | None | None | None |  |
| Act Effct Green (s) | 22.3 | 21.3 |  | 15.5 | 11.4 |  | 15.4 | 11.3 | 11.3 | 26.6 | 23.6 |  |
| Actuated g/C Ratio | 0.38 | 0.36 |  | 0.27 | 0.20 |  | 0.26 | 0.19 | 0.19 | 0.46 | 0.40 |  |
| v/c Ratio | 0.77 | 0.54 |  | 0.07 | 0.64 |  | 0.09 | 0.53 | 0.35 | 0.77 | 0.26 |  |
| Control Delay | 34.5 | 17.6 |  | 12.5 | 12.0 |  | 12.0 | 28.2 | 4.2 | 26.4 | 12.0 |  |
| Queue Delay | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |  |
| Total Delay | 34.5 | 17.6 |  | 12.5 | 12.0 |  | 12.0 | 28.2 | 4.2 | 26.4 | 12.0 |  |
| LOS | C | B |  | B | B |  | B | C | A | C | B |  |
| Approach Delay |  | 22.3 |  |  | 12.0 |  |  | 16.5 |  |  | 22.0 |  |
| Approach LOS |  | C |  |  | B |  |  | B |  |  | C |  |
| Queue Length 50th (m) | 17.0 | 24.7 |  | 1.1 | 10.1 |  | 1.6 | 17.0 | 0.0 | 27.5 | 7.3 |  |

255 - Golden Ears Business Park
Creative Transportation Solutions Ltd

Lanes, Volumes, Timings
1: Harris Road \& Airport Way


[^6]Synchro 10 Report
Creative Transportation Solutions Ltd

|  |  |  |  |  |  |  | 4 | $\dagger$ | 7 |  | $\downarrow$ | $\downarrow$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | \％ | 个产 |  | \％ | 个的 |  | \％ | $\uparrow$ | 「 | \％ | F |  |
| Traffic Volume（vph） | 234 | 575 | 38 | 18 | 208 | 330 | 29 | 169 | 150 | 388 | 107 | 73 |
| Future Volume（vph） | 234 | 575 | 38 | 18 | 208 | 330 | 29 | 169 | 150 | 388 | 107 | 73 |
| Ideal Flow（vphpl） | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width（m） | 3.1 | 3.3 | 3.3 | 3.1 | 3.3 | 3.3 | 3.1 | 3.3 | 3.3 | 3.1 | 3.3 | 3.3 |
| Storage Length（m） | 75.0 |  | 0.0 | 30.0 |  | 0.0 | 15.0 |  | 60.0 | 0.0 |  | 0.0 |
| Storage Lanes | 1 |  | 0 | 1 |  | 0 | 1 |  | 1 | 1 |  | 0 |
| Taper Length（m） | 7.5 |  |  | 7.5 |  |  | 7.5 |  |  | 7.5 |  |  |
| Lane Util．Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt |  | 0.991 |  |  | 0.908 |  |  |  | 0.850 |  | 0.939 |  |
| Flt Protected | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  |
| Satd．Flow（prot） | 1624 | 3023 | 0 | 1624 | 2911 | 0 | 1624 | 1749 | 1487 | 1624 | 1643 | 0 |
| Flt Permitted | 0.185 |  |  | 0.381 |  |  | 0.627 |  |  | 0.380 |  |  |
| Satd．Flow（perm） | 316 | 3023 | 0 | 651 | 2911 | 0 | 1072 | 1749 | 1487 | 649 | 1643 | 0 |
| Right Turn on Red |  |  | Yes |  |  | Yes |  |  | Yes |  |  | Yes |
| Satd．Flow（RTOR） |  | 7 |  |  | 369 |  |  |  | 213 |  | 41 |  |
| Link Speed（k／h） |  | 50 |  |  | 50 |  |  | 50 |  |  | 50 |  |
| Link Distance（m） |  | 745.8 |  |  | 141.0 |  |  | 178.2 |  |  | 32.3 |  |
| Travel Time（s） |  | 53.7 |  |  | 10.2 |  |  | 12.8 |  |  | 2.3 |  |
| Peak Hour Factor | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Heavy Vehicles（\％） | 5\％ | 15\％ | 5\％ | 5\％ | 15\％ | 5\％ | 5\％ | 5\％ | 5\％ | 5\％ | 5\％ | 5\％ |
| Shared Lane Traffic（\％） |  |  |  |  |  |  |  |  |  |  |  |  |
| Lane Group Flow（vph） | 272 | 713 | 0 | 21 | 626 | 0 | 34 | 197 | 174 | 451 | 209 | 0 |
| Turn Type | pm＋pt | NA |  | pm＋pt | NA |  | pm＋pt | NA | Perm | pm＋pt | NA |  |
| Protected Phases | 7 | 4 |  | 3 | 8 |  | 5 | 2 |  | 1 | 6 |  |
| Permitted Phases | 4 |  |  | 8 |  |  | 2 |  | 2 | 6 |  |  |
| Detector Phase | 7 | 4 |  | 3 | 8 |  | 5 | 2 | 2 | 1 | 6 |  |
| Switch Phase |  |  |  |  |  |  |  |  |  |  |  |  |
| Minimum Initial（s） | 4.0 | 7.0 |  | 4.0 | 7.0 |  | 4.0 | 7.0 | 7.0 | 4.0 | 7.0 |  |
| Minimum Split（s） | 8.5 | 26.5 |  | 8.5 | 26.5 |  | 8.5 | 26.5 | 26.5 | 8.5 | 26.5 |  |
| Total Split（s） | 20.0 | 38.0 |  | 8.5 | 26.5 |  | 8.5 | 27.5 | 27.5 | 26.0 | 45.0 |  |
| Total Split（\％） | 20．0\％ | 38．0\％ |  | 8．5\％ | 26．5\％ |  | 8．5\％ | 27．5\％ | 27．5\％ | 26．0\％ | 45．0\％ |  |
| Yellow Time（s） | 3.5 | 3.5 |  | 3.5 | 3.5 |  | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 |  |
| All－Red Time（s） | 1.0 | 1.0 |  | 1.0 | 1.0 |  | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |  |
| Lost Time Adjust（s） | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |  |
| Total Lost Time（s） | 4.5 | 4.5 |  | 4.5 | 4.5 |  | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |  |
| Lead／Lag | Lead | Lag |  | Lead | Lag |  | Lead | Lag | Lag | Lead | Lag |  |
| Lead－Lag Optimize？ | Yes | Yes |  | Yes | Yes |  | Yes | Yes | Yes | Yes | Yes |  |
| Recall Mode | None | Min |  | None | Min |  | None | None | None | None | None |  |
| Act Effct Green（s） | 33.7 | 30.8 |  | 18.1 | 14.0 |  | 18.8 | 14.6 | 14.6 | 38.8 | 34.2 |  |
| Actuated g／C Ratio | 0.41 | 0.38 |  | 0.22 | 0.17 |  | 0.23 | 0.18 | 0.18 | 0.47 | 0.42 |  |
| v／c Ratio | 0.73 | 0.62 |  | 0.11 | 0.78 |  | 0.12 | 0.63 | 0.39 | 0.84 | 0.29 |  |
| Control Delay | 32.5 | 25.4 |  | 18.7 | 20.8 |  | 16.4 | 42.2 | 5.2 | 32.3 | 15.8 |  |
| Queue Delay | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |  |
| Total Delay | 32.5 | 25.4 |  | 18.7 | 20.8 |  | 16.4 | 42.2 | 5.2 | 32.3 | 15.8 |  |
| LOS | C | C |  | B | C |  | B | D | A | C | B |  |
| Approach Delay |  | 27.4 |  |  | 20.8 |  |  | 24.2 |  |  | 27.1 |  |
| Approach LOS |  | C |  |  | C |  |  | C |  |  | C |  |
| Queue Length 50th（m） | 31.7 | 47.1 |  | 2.1 | 21.1 |  | 2.9 | 31.5 | 0.0 | 52.4 | 19.3 |  |

7255 －Golden Ears Business Park Creative Transportation Solutions Ltd．

Lanes，Volumes，Timings
1：Harris Road \＆Airport Way


[^7]Synchro 10 Report
Creative Transportation Solutions Ltd．

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Lane Configurations | ${ }^{7}$ | 㙟 |  | \％ | 个家 |  | ${ }^{4}$ | F |  | \％ | F |  |
| Traffic Volume（vph） | 50 | 364 | 24 | 106 | 772 | 139 | 34 | 109 | 191 | 186 | 50 | 153 |
| Future Volume（vph） | 50 | 364 | 24 | 106 | 772 | 139 | 34 | 109 | 191 | 186 | 50 | 153 |
| Ideal Flow（vphpl） | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length（m） | 60.0 |  | 0.0 | 60.0 |  | 0.0 | 15.0 |  | 0.0 | 60.0 |  | 0.0 |
| Storage Lanes | 1 |  | 0 | 1 |  | 0 | 1 |  | 0 | 1 |  |  |
| Taper Length（m） | 7.5 |  |  | 7.5 |  |  | 7.5 |  |  | 7.5 |  |  |
| Lane Util．Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 |  | 0.99 | 1.00 |  | 0.99 | 0.99 |  | 1.00 | 0.98 |  |
| Frt |  | 0.991 |  |  | 0.977 |  |  | 0.905 |  |  | 0.887 |  |
| Flt Protected | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  |
| Satd．Flow（prot） | 1770 | 3126 | 0 | 1770 | 3110 | 0 | 1770 | 1671 | 0 | 1770 | 1626 |  |
| Flt Permitted | 0.184 |  |  | 0.431 |  |  | 0.621 |  |  | 0.238 |  |  |
| Satd．Flow（perm） | 343 | 3126 | 0 | 797 | 3110 | 0 | 1149 | 1671 | 0 | 443 | 1626 |  |
| Right Turn on Red |  |  | Yes |  |  | Yes |  |  | Yes |  |  | Yes |
| Satd．Flow（RTOR） |  | 9 |  |  | 28 |  |  | 116 |  |  | 165 |  |
| Link Speed（k／h） |  | 50 |  |  | 50 |  |  | 50 |  |  | 50 |  |
| Link Distance（m） |  | 390.6 |  |  | 379.9 |  |  | 225.7 |  |  | 216.1 |  |
| Travel Time（s） |  | 28.1 |  |  | 27.4 |  |  | 16.3 |  |  | 15.6 |  |
| Confl．Peds．（\＃／hr） | 1 |  | 8 | 8 |  | 1 | 9 |  | 1 | 1 |  |  |
| Confl．Bikes（\＃／hr） |  |  | 1 |  |  |  |  |  | 1 |  |  |  |
| 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（\％） | 2\％ | 15\％ | 2\％ | 2\％ | 15\％ | 2\％ | 2\％ | 2\％ | 2\％ | 2\％ | 2\％ | 2\％ |
| Shared Lane Traffic（\％） |  |  |  |  |  |  |  |  |  |  |  |  |
| Lane Group Flow（vph） | 54 | 417 | 0 | 114 | 979 | 0 | 37 | 322 | 0 | 200 | 219 |  |
| Turn Type | pm＋pt | NA |  | pm＋pt | NA |  | Perm | NA |  | pm＋pt | NA |  |
| Protected Phases | 7 | 4 |  | 3 | 8 |  |  | 2 |  | 1 | 6 |  |
| Permitted Phases | 4 |  |  | 8 |  |  | 2 |  |  | 6 |  |  |
| Detector Phase | 7 | 4 |  | 3 | 8 |  | 2 | 2 |  | 1 | 6 |  |
| Switch Phase |  |  |  |  |  |  |  |  |  |  |  |  |
| Minimum Initial（s） | 4.0 | 7.0 |  | 4.0 | 7.0 |  | 7.0 | 7.0 |  | 4.0 | 7.0 |  |
| Minimum Split（s） | 8.5 | 28.5 |  | 8.5 | 28.5 |  | 28.5 | 28.5 |  | 8.5 | 28.5 |  |
| Total Split（s） | 8.6 | 30.2 |  | 10.4 | 32.0 |  | 30.2 | 30.2 |  | 9.2 | 39.4 |  |
| Total Split（\％） | 10．8\％ | 37．8\％ |  | 13．0\％ | 40．0\％ |  | 37．8\％ | 37．8\％ |  | 11．5\％ | 49．3\％ |  |
| Yellow Time（s） | 3.5 | 3.5 |  | 3.5 | 3.5 |  | 3.5 | 3.5 |  | 3.5 | 3.5 |  |
| All－Red Time（s） | 1.0 | 1.0 |  | 1.0 | 1.0 |  | 1.0 | 1.0 |  | 1.0 | 1.0 |  |
| Lost Time Adjust（s） | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 |  |
| Total Lost Time（s） | 4.5 | 4.5 |  | 4.5 | 4.5 |  | 4.5 | 4.5 |  | 4.5 | 4.5 |  |
| Lead／Lag | Lead | Lag |  | Lead | Lag |  | Lag | Lag |  | Lead |  |  |
| Lead－Lag Optimize？ | Yes | Yes |  | Yes | Yes |  | Yes | Yes |  | Yes |  |  |
| Recall Mode | None | Min |  | None | Min |  | None | None |  | None | None |  |
| Act Effct Green（s） | 23.7 | 20.6 |  | 27.2 | 24.1 |  | 13.8 | 13.8 |  | 23.5 | 23.5 |  |
| Actuated g／C Ratio | 0.38 | 0.33 |  | 0.44 | 0.39 |  | 0.22 | 0.22 |  | 0.38 | 0.38 |  |
| v／c Ratio | 0.23 | 0.40 |  | 0.25 | 0.79 |  | 0.14 | 0.70 |  | 0.72 | 0.30 |  |
| Control Delay | 12.6 | 17.9 |  | 11.6 | 23.7 |  | 22.3 | 23.4 |  | 34.6 | 6.2 |  |
| Queue Delay | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 |  |
| Total Delay | 12.6 | 17.9 |  | 11.6 | 23.7 |  | 22.3 | 23.4 |  | 34.6 | 6.2 |  |
| LOS | B | B |  | B | C |  | C | C |  | C | A |  |
| Approach Delay |  | 17.3 |  |  | 22.4 |  |  | 23.3 |  |  | 19.8 |  |

Lanes，Volumes，Timings
2024 Base＋Site
13：Bonson Road \＆Airport Way
Timing Plan：Wkday AM Peak Hr

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Approach LOS |  | B |  |  | C |  |  | C |  |  | B |  |
| Queue Length 50th（m） | 3.3 | 20.1 |  | 7.1 | 56.4 |  | 4.1 | 25.5 |  | 19.6 | 4.9 |  |
| Queue Length 95th（m） | 10.2 | 37.1 |  | 18.6 | 106.6 |  | 11.1 | 51.2 |  | \＃45．0 | 17.8 |  |
| Internal Link Dist（m） |  | 366.6 |  |  | 355.9 |  |  | 201.7 |  |  | 192.1 |  |
| Turn Bay Length（m） | 60.0 |  |  | 60.0 |  |  | 15.0 |  |  | 60.0 |  |  |
| Base Capacity（vph） | 232 | 1385 |  | 450 | 1485 |  | 507 | 803 |  | 276 | 1041 |  |
| 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 | 0.23 | 0.30 |  | 0.25 | 0.66 |  | 0.07 | 0.40 |  | 0.72 | 0.21 |  |
| Intersection Summary |  |  |  |  |  |  |  |  |  |  |  |  |
| Area Type：Other |  |  |  |  |  |  |  |  |  |  |  |  |
| Cycle Length： 80 |  |  |  |  |  |  |  |  |  |  |  |  |
| Actuated Cycle Length： 61.6 |  |  |  |  |  |  |  |  |  |  |  |  |
| Natural Cycle： 80 |  |  |  |  |  |  |  |  |  |  |  |  |
| Control Type：Actuated－Uncoordinated |  |  |  |  |  |  |  |  |  |  |  |  |
| Maximum v／c Ratio： 0.79 |  |  |  |  |  |  |  |  |  |  |  |  |
| Intersection Signal Delay： 21.1 |  |  |  | Intersection LOS：C |  |  |  |  |  |  |  |  |
| Intersection Capacity Utilization 72．0\％ |  |  |  | ICU Level of Service C |  |  |  |  |  |  |  |  |
| Analysis Period（min） 15 |  |  |  |  |  |  |  |  |  |  |  |  |

\＃95th percentile volume exceeds capacity，queue may be longer．
Queue shown is maximum after two cycles


[^8]Synchro 10 Report
Creative Transportation Solutions Ltd
Page 2

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SB |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Lane Configurations | ${ }^{\text {M }}$ | 个官 |  | \％ | 个令 |  | \％ | ¢ |  | \％ | $\hat{A}$ |  |
| Traffic Volume（vph） | 39 | 368 | 43 | 154 | 657 | 166 | 52 | 137 | 249 | 222 | 68 |  |
| Future Volume（vph） | 39 | 368 | 43 | 154 | 657 | 166 | 52 | 137 | 249 | 222 | 68 |  |
| eal Flow（vphpl） |  |  |  |  |  |  |  |  |  |  |  |  |


| deal Flow（vphpl） | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Storage Length $(\mathrm{m})$ | 60.0 |  | 0.0 | 60.0 |  | 0.0 | 150 |  |  | 0.0 |  | Storage Length（ m ）

Storage Lanes
$\begin{array}{lrllllllllllll} & 1.5 & 7.5 & & & \\ \text { ane Util．Factor } & 1.00 & 0.95 & 0.95 & 1.00 & 0.95 & 0.95 & 1.00 & 1.00 & 1.00 & 1.00 & 1.00 & 1.00\end{array}$

| ane Util．Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Ped Bike Factor | 1.00 | 1.00 |  | 0.99 | 1.00 |  | 0.99 | 0.99 |  | 1.00 | 0.99 |  |
| Frt |  | 0.984 |  |  | 0.970 |  |  | 0.903 |  |  | 0.907 |  |

Flt Protected 0.950
1770
$\begin{array}{ll}\text { Satd．Flow（prot）} & 1770 \\ \text { Flt Permitted } & 0.193\end{array}$
$\begin{array}{lllllllllll} & 3115 & 0 & 1770 & 3102 & 0 & 1770 & 1667 & 0 & 1770 & 1668\end{array}$ $\begin{array}{lllllllllllll}\text { Satd．Flow（perm）} & 359 & 3115 & 0 & 711 & 3102 & 0 & 1178 & 1667 & 0 & 335 & 1668 & 0\end{array}$ Right Turn on Red Satd．Flow（RTOR）
Link Speed（k／h）
Link Distance（m） Link Speed（k／h）
Link Distance（m）
Travel Time（s） Travel Time（s）
Confl．Peds．（\＃／hr）
Peak Hour Factor
Heavy Vehicles（\％）
Shared Lane Traffic（\％）
Lane Group Flow（vph）
$\begin{array}{lrrrrrrrrrrr}42 & 442 & 0 & 166 & 884 & 0 & 56 & 415 & 0 & 239 & 191\end{array}$
Trotected Phases
Permitted Phase
Switch Phase

| Minimum Initial（s） | 4.0 | 7.0 | 4.0 | 7.0 | 2 | 7.0 | 7.0 | 4 |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Minimum Split（s） | 8.5 | 28.5 | 8.5 | 28 | 28 | 4.0 | 7.0 |  |


|  |  |  |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Minimum Split（s） | 4.0 | 7.0 | 4.0 | 7.0 | 7.0 | 7.0 | 4.0 | 7.0 |
| Minimum Sol | 8.5 | 28.5 | 8.5 | 28.5 | 28.5 | 28.5 | 8.5 | 28.5 |
| Total Split（s） | 8.5 | 29.5 | 9.0 | 30.0 | 29.5 | 29.5 | 12.0 | 4.5 |

Total Split（s）
Total Split（\％）
（s）$\quad 10$

All－Red Time（s）
Lost Time Adust（s）
Total Lost Time（s）


Lead－Lag Optimize？

|  | Nose | Mes | Mes | Yes | Yes | Yes | Yes |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Recall Modren（s） | 22.6 | 18.4 |  | Min | None | None | None |


| Act Effct Green（s） | 22.6 | 18.4 |
| :--- | :--- | :--- |
| Actuated g／C Ratio | 0.34 | 0.27 |



Queue Delay
 LOS
Approach Delay
7255 －Golden Ears Business Park
Creative Transportation Solutions Ltd．

Lanes，Volumes，Timings
2035 Base
13：Bonson Road \＆Airport Way Timing Plan：Wkday AM Peak Hr

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Approach LOS |  | C |  |  | C |  |  | C |  |  | C |  |
| Queue Length 50th（m） | 3.3 | 24.8 |  | 13.9 | 58.2 |  | 6.4 | 40.9 |  | 22.8 | 6.3 |  |
| Queue Length 95th（m） | 9.7 | 41.9 |  | 29.2 | \＃101．3 |  | 15.2 | 73.7 |  | \＃54．6 | 17.9 |  |
| Internal Link Dist（m） |  | 366.6 |  |  | 355.9 |  |  | 201.7 |  |  | 192.1 |  |
| Turn Bay Length（m） | 60.0 |  |  | 60.0 |  |  | 15.0 |  |  | 60.0 |  |  |
| Base Capacity（vph） | 207 | 1218 |  | 345 | 1252 |  | 456 | 719 |  | 316 | 1008 |  |
| 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 | 0.20 | 0.36 |  | 0.48 | 0.71 |  | 0.12 | 0.58 |  | 0.76 | 0.19 |  |
| Intersection Summary |  |  |  |  |  |  |  |  |  |  |  |  |
| Area Type：Other |  |  |  |  |  |  |  |  |  |  |  |  |
| Cycle Length： 80 |  |  |  |  |  |  |  |  |  |  |  |  |
| Actuated Cycle Length： 67.2 |  |  |  |  |  |  |  |  |  |  |  |  |
| Natural Cycle： 80 |  |  |  |  |  |  |  |  |  |  |  |  |
| Control Type：Actuated－Uncoordinated |  |  |  |  |  |  |  |  |  |  |  |  |
| Maximum v／c Ratio： 0.80 |  |  |  |  |  |  |  |  |  |  |  |  |
| Intersection Signal Delay： 24.8 |  |  |  | Intersection LOS：C |  |  |  |  |  |  |  |  |
| Intersection Capacity Utilization 76．7\％ |  |  |  | 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．


[^9]Synchro 10 Report
Creative Transportation Solutions Ltd
Page 2

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Lane Configurations | \％ | 个 ${ }_{\text {F }}$ |  | 介 | 个的 |  | \％ | F |  | \％ | F |  |
| Traffic Volume（vph） | 55 | 420 | 46 | 154 | 878 | 166 | 52 | 137 | 249 | 222 | 68 | 176 |
| Future Volume（vph） | 55 | 420 | 46 | 154 | 878 | 166 | 52 | 137 | 249 | 222 | 68 | 176 |
| Ideal Flow（vphpl） | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length（m） | 60.0 |  | 0.0 | 60.0 |  | 0.0 | 15.0 |  | 0.0 | 60.0 |  | 0.0 |
| Storage Lanes | 1 |  | 0 | 1 |  | 0 | 1 |  | 0 | 1 |  |  |
| Taper Length（m） | 7.5 |  |  | 7.5 |  |  | 7.5 |  |  | 7.5 |  |  |
| Lane Util．Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 |  | 0.99 | 1.00 |  | 0.99 | 0.99 |  | 1.00 | 0.98 |  |
| Frt |  | 0.985 |  |  | 0.976 |  |  | 0.903 |  |  | 0.892 |  |
| Flt Protected | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  |
| Satd．Flow（prot） | 1770 | 3116 | 0 | 1770 | 3109 | 0 | 1770 | 1667 | 0 | 1770 | 1635 | 0 |
| Flt Permitted | 0.153 |  |  | 0.320 |  |  | 0.597 |  |  | 0.159 |  |  |
| Satd．Flow（perm） | 285 | 3116 | 0 | 593 | 3109 | 0 | 1104 | 1667 | 0 | 296 | 1635 |  |
| Right Turn on Red |  |  | Yes |  |  | Yes |  |  | Yes |  |  | Yes |
| Satd．Flow（RTOR） |  | 13 |  |  | 27 |  |  | 102 |  |  | 166 |  |
| Link Speed（k／h） |  | 50 |  |  | 50 |  |  | 50 |  |  | 50 |  |
| Link Distance（m） |  | 390.6 |  |  | 379.9 |  |  | 225.7 |  |  | 216.1 |  |
| Travel Time（s） |  | 28.1 |  |  | 27.4 |  |  | 16.3 |  |  | 15.6 |  |
| Confl．Peds．（\＃／hr） | 1 |  | 8 | 8 |  | 1 | 9 |  | 1 | 1 |  |  |
| Confl．Bikes（\＃／hr） |  |  | 1 |  |  |  |  |  | 1 |  |  |  |
| 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（\％） | 2\％ | 15\％ | 2\％ | 2\％ | 15\％ | 2\％ | 2\％ | 2\％ | 2\％ | 2\％ | 2\％ | 2\％ |
| Shared Lane Traffic（\％） |  |  |  |  |  |  |  |  |  |  |  |  |
| Lane Group Flow（vph） | 59 | 501 | 0 | 166 | 1122 | 0 | 56 | 415 | 0 | 239 | 262 |  |
| Turn Type | pm＋pt | NA |  | pm＋pt | NA |  | Perm | NA |  | pm＋pt | NA |  |
| Protected Phases | 7 | 4 |  | 3 | 8 |  |  | 2 |  | 1 | 6 |  |
| Permitted Phases | 4 |  |  | 8 |  |  | 2 |  |  | 6 |  |  |
| Detector Phase | 7 | 4 |  | 3 | 8 |  | 2 | 2 |  | 1 | 6 |  |
| Switch Phase |  |  |  |  |  |  |  |  |  |  |  |  |
| Minimum Initial（s） | 4.0 | 7.0 |  | 4.0 | 7.0 |  | 7.0 | 7.0 |  | 4.0 | 7.0 |  |
| Minimum Split（s） | 8.5 | 28.5 |  | 8.5 | 28.5 |  | 28.5 | 28.5 |  | 8.5 | 28.5 |  |
| Total Split（s） | 8.6 | 32.3 |  | 14.3 | 38.0 |  | 30.0 | 30.0 |  | 13.4 | 43.4 |  |
| Total Split（\％） | 9．6\％ | 35．9\％ |  | 15．9\％ | 42．2\％ |  | 33．3\％ | 33．3\％ |  | 14．9\％ | 48．2\％ |  |
| Yellow Time（s） | 3.5 | 3.5 |  | 3.5 | 3.5 |  | 3.5 | 3.5 |  | 3.5 | 3.5 |  |
| All－Red Time（s） | 1.0 | 1.0 |  | 1.0 | 1.0 |  | 1.0 | 1.0 |  | 1.0 | 1.0 |  |
| Lost Time Adjust（s） | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 |  |
| Total Lost Time（s） | 4.5 | 4.5 |  | 4.5 | 4.5 |  | 4.5 | 4.5 |  | 4.5 | 4.5 |  |
| Lead／Lag | Lead | Lag |  | Lead | Lag |  | Lag | Lag |  | Lead |  |  |
| Lead－Lag Optimize？ | Yes | Yes |  | Yes | Yes |  | Yes | Yes |  | Yes |  |  |
| Recall Mode | None | Min |  | None | Min |  | None | None |  | None | None |  |
| Act Effct Green（s） | 29.0 | 24.8 |  | 38.4 | 32.0 |  | 20.5 | 20.5 |  | 34.3 | 34.3 |  |
| Actuated g／C Ratio | 0.35 | 0.30 |  | 0.47 | 0.39 |  | 0.25 | 0.25 |  | 0.42 | 0.42 |  |
| v／c Ratio | 0.33 | 0.53 |  | 0.41 | 0.91 |  | 0.20 | 0.84 |  | 0.83 | 0.34 |  |
| Control Delay | 18.8 | 25.7 |  | 16.6 | 37.2 |  | 27.1 | 38.7 |  | 44.4 | 7.8 |  |
| Queue Delay | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 |  |
| Total Delay | 18.8 | 25.7 |  | 16.6 | 37.2 |  | 27.1 | 38.7 |  | 44.4 | 7.8 |  |
| LOS | B | C |  | B | D |  | C | D |  | D | A |  |
| Approach Delay |  | 25.0 |  |  | 34.6 |  |  | 37.3 |  |  | 25.3 |  |

7255 －Golden Ears Business Park
Creative Transportation Solutions Ltd

Lanes，Volumes，Timings
13：Bonson Road \＆Airport Way

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Approach LOS |  | C |  |  | C |  |  | D |  |  | C |  |
| Queue Length 50th（m） | 5.3 | 36.3 |  | 16.0 | 95.6 |  | 7.7 | 52.4 |  | 27.7 | 10.2 |  |
| Queue Length 95th（m） | 12.5 | 54.0 |  | 29.7 | 147.0 |  | 17.7 | \＃97．0 |  | \＃66．4 | 26.2 |  |
| Internal Link Dist（m） |  | 366.6 |  |  | 355.9 |  |  | 201.7 |  |  | 192.1 |  |
| Turn Bay Length（m） | 60.0 |  |  | 60.0 |  |  | 15.0 |  |  | 60.0 |  |  |
| Base Capacity（vph） | 177 | 1103 |  | 422 | 1320 |  | 352 | 601 |  | 288 | 881 |  |
| 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 | 0.45 |  | 0.39 | 0.85 |  | 0.16 | 0.69 |  | 0.83 | 0.30 |  |
| Intersection Summary |  |  |  |  |  |  |  |  |  |  |  |  |
| Area Type：Other |  |  |  |  |  |  |  |  |  |  |  |  |
| Cycle Length： 90 |  |  |  |  |  |  |  |  |  |  |  |  |
| Actuated Cycle Length： 81.9 |  |  |  |  |  |  |  |  |  |  |  |  |
| Natural Cycle： 90 |  |  |  |  |  |  |  |  |  |  |  |  |
| Control Type：Actuated－Uncoordinated |  |  |  |  |  |  |  |  |  |  |  |  |
| Maximum v／c Ratio： 0.91 |  |  |  |  |  |  |  |  |  |  |  |  |
| Intersection Signal Delay： 31.5 |  |  |  | Intersection LOS：CICU Level of Service E |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |

$\begin{array}{ll}\text { Intersection Signal Delay：} 31.5 & \text { Intersection LOS：C } \\ \text { intersection Capacity Utilization } 82.8 \% & \text { ICU Level of Service E }\end{array}$
intersection Capacity Utilization 82.8
\＃95th percentile volume exceeds capacity，queue may be longer
Queue shown is maximum after two cycles．


[^10]Synchro 10 Report
Creative Transportation Solutions Ltd
Page 2

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SB |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Lane Configurations | \% | 中 ${ }^{\text {a }}$ |  | \% | 中t |  | \% | A |  | \% | A |  |
| Traffic Volume (vph) | 124 | 635 | 43 | 150 | 370 | 203 | 19 | 63 | 131 | 9 | 66 |  |
| Future Volume (vph) | 124 | 635 | 43 | 150 | 370 | 203 | 19 | 63 | 131 | 99 | 66 |  |


|  |  |  |  |  |  |  |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | Storage Length ( m )

$\begin{array}{lrlllllllllll}\text { aper Length }(m) & 7.5 & & 7.5 & 7.5 & & & 7.5 & 1.00 & 1.00 & 1.00 & 1.00 & 1.00\end{array}$

| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Ped Bike Factor | 1.00 | 1.00 |  | 1.00 | 0.99 |  | 1.00 | 0.99 |  | 1.00 | 0.99 |  |
| Frt |  | 0.990 |  |  | 0.947 |  |  | 0.899 |  |  | 0.940 |  |

Flt Protected
$\square$ $\begin{array}{llllll}1770 & 3125 & 0 & 1770 & 3073 & 0.950\end{array}$ 0.355
Yes
$0 \quad 1770$

0.675 Flt Permitted Satd. Flow (perm)

$$
\begin{array}{rlrr}
1770 & 3125 & 0 & 1770 \\
0.355 & & & 0.228 \\
661 & 3125 & 0 & 424
\end{array}
$$

$0.675 \quad 1659 \quad 0 \quad 1770 \quad 1742 \quad 0$

Satd. Flow (RTOR)
Satd. Flow (RTO Link Speed (k/h)
Link Distance (m)
Travel Time ( s )
Confl Peds. $(\# / \mathrm{hr})$ Confl. Peds. (\#/hr)
Confl. Bikes (\#/hr)
10
50
390.6

Peak Hour Factor
Heavy Vehicles (\%)
Shared Lane Traffic (\%)

Protected Phase
Permitted Phases
Setector Phas

| Minimum Initial (s) | 4.0 | 7.0 | 4.0 | 7.0 | 7.0 | 7.0 | 4.0 | 7.0 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |


|  |  |  |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Minimum Initial (s) | 4.0 | 7.0 | 4.0 | 7.0 | 7.0 | 7.0 | 4.0 | 7.0 |
| Minimum Split (s) | 8.5 | 28.5 | 8.5 | 28.5 | 28.5 | 28.5 | 8.5 | 28.5 |
| Total Split (s) | 9.0 | 28.5 | 9.2 | 28.7 | 28.8 | 28.8 | 8.5 | 3.3 |

Total Split (s)
otal Split (\%)
Yellow Tite (s)
ost Time Adjust (s)
Total Lost Time (s)


Lead-Lag Optimize?
Act Effct Green (s)
Act Effct Green (s)


Queue Delay
 OS
Approach Delay
7255 - Golden Ears Business Park
Creative Transportation Solutions Ltd.

Lanes, Volumes, Timings
2024 Base
13: Bonson Road \& Airport Way Timing Plan: Wkday PM Peak Hr

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Approach LOS |  | B |  |  | B |  |  | B |  |  | B |  |
| Queue Length 50th (m) | 6.9 | 35.2 |  | 8.5 | 21.1 |  | 2.0 | 7.2 |  | 8.6 | 5.6 |  |
| Queue Length 95th (m) | 16.5 | 56.7 |  | \#19.9 | 37.6 |  | 7.3 | 23.3 |  | 19.4 | 16.1 |  |
| Internal Link Dist (m) |  | 366.6 |  |  | 355.9 |  |  | 201.7 |  |  | 192.1 |  |
| Turn Bay Length ( m ) | 60.0 |  |  | 60.0 |  |  | 15.0 |  |  | 60.0 |  |  |
| Base Capacity (vph) | 386 | 1474 |  | 322 | 1533 |  | 597 | 867 |  | 270 | 1137 |  |
| 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 | 0.37 | 0.53 |  | 0.54 | 0.43 |  | 0.04 | 0.26 |  | 0.43 | 0.11 |  |
| Intersection Summary |  |  |  |  |  |  |  |  |  |  |  |  |
| Area Type: Other |  |  |  |  |  |  |  |  |  |  |  |  |
| Cycle Length: 75 |  |  |  |  |  |  |  |  |  |  |  |  |
| Actuated Cycle Length: 53.1 |  |  |  |  |  |  |  |  |  |  |  |  |
| Natural Cycle: 75 |  |  |  |  |  |  |  |  |  |  |  |  |
| Control Type: Actuated-Uncoordinated |  |  |  |  |  |  |  |  |  |  |  |  |
| Maximum v/c Ratio: 0.72 |  |  |  |  |  |  |  |  |  |  |  |  |
| Intersection Signal Delay: 15.7 |  |  |  | Intersection LOS: B |  |  |  |  |  |  |  |  |
| Intersection Capacity Utilization 59.9\% |  |  |  | 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.


[^11]Synchro 10 Report
Creative Transportation Solutions Ltd
Page 2

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Lane Configurations | \％ | 个t |  | \％ | 个的 |  | \％ | $\hat{\dagger}$ |  | \％ | F |  |
| Traffic Volume（vph） | 189 | 851 | 56 | 150 | 428 | 203 | 19 | 63 | 131 | 99 | 66 | 61 |
| Future Volume（vph） | 189 | 851 | 56 | 150 | 428 | 203 | 19 | 63 | 131 | 99 | 66 | 61 |
| Ideal Flow（vphpl） | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length（m） | 60.0 |  | 0.0 | 60.0 |  | 0.0 | 15.0 |  | 0.0 | 60.0 |  | 0.0 |
| Storage Lanes | 1 |  | 0 | 1 |  | 0 | 1 |  | 0 | 1 |  |  |
| Taper Length（m） | 7.5 |  |  | 7.5 |  |  | 7.5 |  |  | 7.5 |  |  |
| Lane Util．Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 |  | 1.00 | 0.99 |  | 1.00 | 0.99 |  | 1.00 | 0.99 |  |
| Frt |  | 0.991 |  |  | 0.952 |  |  | 0.899 |  |  | 0.928 |  |
| Flt Protected | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  |
| Satd．Flow（prot） | 1770 | 3128 | 0 | 1770 | 3080 | 0 | 1770 | 1659 | 0 | 1770 | 1717 | 0 |
| Flt Permitted | 0.244 |  |  | 0.169 |  |  | 0.663 |  |  | 0.288 |  |  |
| Satd．Flow（perm） | 454 | 3128 | 0 | 315 | 3080 | 0 | 1234 | 1659 | 0 | 536 | 1717 | 0 |
| Right Turn on Red |  |  | Yes |  |  | Yes |  |  | Yes |  |  | Yes |
| Satd．Flow（RTOR） |  | 9 |  |  | 102 |  |  | 135 |  |  | 71 |  |
| Link Speed（k／h） |  | 50 |  |  | 50 |  |  | 50 |  |  | 50 |  |
| Link Distance（m） |  | 390.6 |  |  | 379.9 |  |  | 225.7 |  |  | 216.1 |  |
| Travel Time（s） |  | 28.1 |  |  | 27.4 |  |  | 16.3 |  |  | 15.6 |  |
| Confl．Peds．（\＃／hr） | 1 |  | 2 | 2 |  | 1 | 1 |  | 2 | 2 |  |  |
| Confl．Bikes（\＃／hr） |  |  | 1 |  |  |  |  |  |  |  |  |  |
| Peak Hour Factor | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Heavy Vehicles（\％） | 2\％ | 15\％ | 2\％ | 2\％ | 15\％ | 2\％ | 2\％ | 2\％ | 2\％ | 2\％ | 2\％ | 2\％ |
| Shared Lane Traffic（\％） |  |  |  |  |  |  |  |  |  |  |  |  |
| Lane Group Flow（vph） | 220 | 1055 | 0 | 174 | 734 | 0 | 22 | 225 | 0 | 115 | 148 | 0 |
| Turn Type | pm＋pt | NA |  | pm＋pt | NA |  | Perm | NA |  | pm＋pt | NA |  |
| Protected Phases | 7 | 4 |  | 3 | 8 |  |  | 2 |  | 1 | 6 |  |
| Permitted Phases | 4 |  |  | 8 |  |  | 2 |  |  | 6 |  |  |
| Detector Phase | 7 | 4 |  | 3 | 8 |  | 2 | 2 |  | 1 | 6 |  |
| Switch Phase |  |  |  |  |  |  |  |  |  |  |  |  |
| Minimum Initial（s） | 4.0 | 7.0 |  | 4.0 | 7.0 |  | 7.0 | 7.0 |  | 4.0 | 7.0 |  |
| Minimum Split（s） | 8.5 | 28.5 |  | 8.5 | 28.5 |  | 28.5 | 28.5 |  | 8.5 | 28.5 |  |
| Total Split（s） | 13.8 | 32.2 |  | 10.3 | 28.7 |  | 28.9 | 28.9 |  | 8.6 | 37.5 |  |
| Total Split（\％） | 17．3\％ | 40．3\％ |  | 12．9\％ | 35．9\％ |  | 36．1\％ | 36．1\％ |  | 10．8\％ | 46．9\％ |  |
| Yellow Time（s） | 3.5 | 3.5 |  | 3.5 | 3.5 |  | 3.5 | 3.5 |  | 3.5 | 3.5 |  |
| All－Red Time（s） | 1.0 | 1.0 |  | 1.0 | 1.0 |  | 1.0 | 1.0 |  | 1.0 | 1.0 |  |
| Lost Time Adjust（s） | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 |  |
| Total Lost Time（s） | 4.5 | 4.5 |  | 4.5 | 4.5 |  | 4.5 | 4.5 |  | 4.5 | 4.5 |  |
| Lead／Lag | Lead | Lag |  | Lead | Lag |  | Lag | Lag |  | Lead |  |  |
| Lead－Lag Optimize？ | Yes | Yes |  | Yes | Yes |  | Yes | Yes |  | Yes |  |  |
| Recall Mode | None | Min |  | None | Min |  | None | None |  | None | None |  |
| Act Effct Green（s） | 35.2 | 26.5 |  | 29.6 | 23.7 |  | 9.8 | 9.8 |  | 16.3 | 16.3 |  |
| Actuated g／C Ratio | 0.56 | 0.42 |  | 0.47 | 0.38 |  | 0.16 | 0.16 |  | 0.26 | 0.26 |  |
| v／c Ratio | 0.50 | 0.79 |  | 0.61 | 0.60 |  | 0.11 | 0.60 |  | 0.52 | 0.30 |  |
| Control Delay | 11.4 | 22.4 |  | 20.7 | 16.8 |  | 24.7 | 18.5 |  | 26.8 | 11.9 |  |
| Queue Delay | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 |  |
| Total Delay | 11.4 | 22.4 |  | 20.7 | 16.8 |  | 24.7 | 18.5 |  | 26.8 | 11.9 |  |
| LOS | B | C |  | C | B |  | C | B |  | C | B |  |
| Approach Delay |  | 20.5 |  |  | 17.5 |  |  | 19.1 |  |  | 18.4 |  |

7255 －Golden Ears Business Park

Lanes，Volumes，Timings


[^12]Synchro 10 Report
Creative Transportation Solutions Ltd．
Page 2

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Lane Configurations | \% | 性 |  | \% | 㙟 |  | \% | F |  | \% | A |  |
| Traffic Volume (vph) | 147 | 756 | 54 | 178 | 440 | 243 | 26 | 77 | 161 | 118 | 78 |  |
| Future Volume (vph) | 147 | 756 | 54 | 178 | 440 | 243 | 26 | 77 | 161 | 118 | 78 |  |


| deal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Storage Length $(\mathrm{m})$ | 60.0 |  | 0.0 | 60.0 |  | 0.0 | 15.0 |  | 0.0 | 60.0 |  | Storage Length ( m )

$\begin{array}{lrrrrrrrrrrrr}\text { aper Length }(m) & 7.5 & & & 7.5 & & & 7.5 & & & 1.05 \\ \text { ane Util. Factor } & 1.00 & 0.95 & 0.95 & 1.00 & 0.95 & 0.95 & 1.00 & 1.00 & 1.00 & 1.00 & 1.00 & 1.00\end{array}$

| ane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Ped Bike Factor | 1.00 | 1.00 |  | 1.00 | 0.99 |  | 1.00 | 0.99 |  | 1.00 | 0.99 |  |
| F rt |  | 0.990 |  |  | 0.947 |  |  | 0.899 |  |  | 0.939 |  |

FIt Protected
$\square$ $\begin{array}{lllllllllll}1770 & 3126 & 0 & 1770 & 3074 & 0 & 1770 & 1659 & 0 & 1770 & 1740\end{array}$ $0.246 \quad 0.167 \quad 0.660$ Satd. Flow (prot
Flt Permitted Satd. Flow (perm) Right Turn on Red Satd. Flow (RTOR)
Link Speed (k/h) Link Speed (k/h)
Link Distance ( m )
Travel Time (s)
Confl. Peds. (\#/hr) Confl. Peds. (\#/hr)
Confl. Bikes (\#/hr)
$\begin{array}{lllllllllllll}\text { Peak Hour Factor } & 0.86 & 0.86 & 0.86 & 0.86 & 0.86 & 0.86 & 0.86 & 0.86 & 0.86 & 0.86 & 0.86 & 0.86\end{array}$

Heavy Vehicles (\%) Shared Lane Traffic (\%)

| Lane Group Flow (vph) | 171 | 942 | 0 | 207 | 795 | 0 | 30 | 277 | 0 | 137 | 153 | 0 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

$$
\begin{aligned}
& \text { Turn Type } \\
& \text { Protected Pha }
\end{aligned}
$$

$$
\begin{aligned}
& \text { Protected Phases } \\
& \text { Permitted Phases } \\
& \text { Detector Phase }
\end{aligned}
$$

$$
\begin{aligned}
& \text { Jermected Phase } \\
& \text { Detor }
\end{aligned}
$$

$$
\begin{array}{lrrrrrrrr}
\text { Detector Phase } & 7 & 4 & 3 & 8 & 2 & 2 & 1 & 6 \\
\text { Switch Phase } & & & & & & & & 4.0 \\
\text { Minimum Initial (s) } & 4.0 & 7.0 & 4.0 & 7.0 & 7.0 & 7.0 & 4.0 \\
\text { Minimum Split (s) } & 8.5 & 28.5 & 8.5 & 28.5 & 28.5 & 28.5 & 8.5 & 28.5
\end{array}
$$

Switch Phase

$$
\begin{array}{lrrrrrrrr}
\text { Minimum Initial (s) } & 4.0 & 7.0 & 4.0 & 7.0 & 7.0 & 7.0 & 4.0 & 7.0 \\
\text { Minimum Split (s) } & 8.5 & 28.5 & 8.5 & 28.5 & 28.5 & 28.5 & 8.5 & 28.5 \\
\text { Total Split (s) } & 11.8 & 30.0 & 12.0 & 30.2 & 29.4 & 29.4 & 8.6 & 38.0
\end{array}
$$

$$
\begin{array}{lrrrrrrr} 
\\
\text { Total Split (s) } & 11.8 & 30.0 & 12.0 & 30.2 & 29.4 & 29.4 & 8.6 \\
\text { Total Split (\%) } & 14.8 \% & 37.5 \% & 15.0 \% & 37.8 \% & 36.8 \% & 36.8 \% & 10.8 \% \\
\hline
\end{array}
$$

| Total Split (\%) | $14.8 \%$ | $37.5 \%$ | $15.0 \%$ | $37.8 \%$ | $36.8 \%$ | $36.8 \%$ | $10.8 \%$ |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Yellow Time (s) | 3.5 | 3.5 | $3.5 \%$ | 3.5 | 3.5 | 3.5 | 3.5 |


| Yellow Time (s) | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| All-Red Time (s) | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lead/Lag | Lead | Lag | Lead | Lag | Lag | Lag | Lead |  |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | Yes | Yes | Yes |  |
| Recall Mode | None | Min | None | Min | None | None | None | None |
| Act Effct Green (s) | 31.7 | 24.4 | 32.5 | 24.8 | 11.7 | 11.7 | 18.2 | 18.2 |
| Actuated g/C Ratio | 0.49 | 0.38 | 0.51 | 0.39 | 0.18 | 0.18 | 0.28 | 0.28 |
| v/c Ratio | 0.46 | 0.79 | 0.63 | 0.62 | 0.13 | 0.67 | 0.63 | 0.29 |
| Control Delay | 12.6 | 24.9 | 20.4 | 16.6 | 23.8 | 21.7 | 31.8 | 13.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 12.6 | 24.9 | 20.4 | 16.6 | 23.8 | 21.7 | 31.8 | 13.1 |
| LOS | C | C | C | B | C | C | C | C |
| Approach Delay |  | 23.0 |  | 17.4 |  | 21.9 |  | 21.9 |

255 - Golden Ea
Creative Transportation Solutions Ltd.

Lanes, Volumes, Timings
2035 Base
13: Bonson Road \& Airport Way Timing Plan: Wkday PM Peak Hr

\# 95th percentile volume exceeds capacity, queue may be longer
Queue shown is maximum after two cycles.


255 - Golden Ears Business Park
Synchro 10 Report
Creative Transportation Solutions Ltd
Page 2

|  |  |  |  |  |  |  |  | $\uparrow$ |  |  |  | $\downarrow$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | \% | 个 $\uparrow$ |  | \% | 性 |  | \% | $\hat{\dagger}$ |  | \% | F |  |
| Traffic Volume (vph) | 212 | 972 | 67 | 178 | 498 | 243 | 26 | 77 | 161 | 118 | 78 | 70 |
| Future Volume (vph) | 212 | 972 | 67 | 178 | 498 | 243 | 26 | 77 | 161 | 118 | 78 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (m) | 60.0 |  | 0.0 | 60.0 |  | 0.0 | 15.0 |  | 0.0 | 60.0 |  | 0.0 |
| Storage Lanes | 1 |  | 0 | 1 |  | 0 | 1 |  | 0 | 1 |  | 0 |
| Taper Length (m) | 7.5 |  |  | 7.5 |  |  | 7.5 |  |  | 7.5 |  |  |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 |  | 1.00 | 0.99 |  | 1.00 | 0.99 |  | 1.00 | 0.99 |  |
| Frt |  | 0.990 |  |  | 0.951 |  |  | 0.899 |  |  | 0.929 |  |
| FIt Protected | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  |
| Satd. Flow (prot) | 1770 | 3126 | 0 | 1770 | 3078 | 0 | 1770 | 1659 | 0 | 1770 | 1719 | 0 |
| FIt Permitted | 0.201 |  |  | 0.123 |  |  | 0.649 |  |  | 0.221 |  |  |
| Satd. Flow (perm) | 374 | 3126 | 0 | 229 | 3078 | 0 | 1208 | 1659 | 0 | 411 | 1719 | 0 |
| Right Turn on Red |  |  | Yes |  |  | Yes |  |  | Yes |  |  | Yes |
| Satd. Flow (RTOR) |  | 9 |  |  | 100 |  |  | 114 |  |  | 56 |  |
| Link Speed (k/h) |  | 50 |  |  | 50 |  |  | 50 |  |  | 50 |  |
| Link Distance (m) |  | 390.6 |  |  | 379.9 |  |  | 225.7 |  |  | 216.1 |  |
| Travel Time (s) |  | 28.1 |  |  | 27.4 |  |  | 16.3 |  |  | 15.6 |  |
| Confl. Peds. (\#/hr) | 1 |  | 2 | 2 |  | 1 | 1 |  | 2 | 2 |  | 1 |
| Confl. Bikes (\#/hr) |  |  | 1 |  |  |  |  |  |  |  |  |  |
| Peak Hour Factor | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Heavy Vehicles (\%) | 2\% | 15\% | 2\% | 2\% | 15\% | 2\% | 2\% | 2\% | 2\% | 2\% | 2\% | 2\% |
| Shared Lane Traffic (\%) |  |  |  |  |  |  |  |  |  |  |  |  |
| Lane Group Flow (vph) | 247 | 1208 | 0 | 207 | 862 | 0 | 30 | 277 | 0 | 137 | 172 | 0 |
| Turn Type | pm+pt | NA |  | pm+pt | NA |  | Perm | NA |  | pm+pt | NA |  |
| Protected Phases | 7 | 4 |  | 3 | 8 |  |  | 2 |  | 1 | 6 |  |
| Permitted Phases | 4 |  |  | 8 |  |  | 2 |  |  | 6 |  |  |
| Detector Phase | 7 | 4 |  | 3 | 8 |  | 2 | 2 |  | 1 | 6 |  |
| Switch Phase |  |  |  |  |  |  |  |  |  |  |  |  |
| Minimum Initial (s) | 4.0 | 7.0 |  | 4.0 | 7.0 |  | 7.0 | 7.0 |  | 4.0 | 7.0 |  |
| Minimum Split (s) | 8.5 | 28.5 |  | 8.5 | 28.5 |  | 28.5 | 28.5 |  | 8.5 | 28.5 |  |
| Total Split (s) | 17.4 | 39.4 |  | 12.9 | 34.9 |  | 28.9 | 28.9 |  | 8.8 | 37.7 |  |
| Total Split (\%) | 19.3\% | 43.8\% |  | 14.3\% | 38.8\% |  | 32.1\% | 32.1\% |  | 9.8\% | 41.9\% |  |
| Yellow Time (s) | 3.5 | 3.5 |  | 3.5 | 3.5 |  | 3.5 | 3.5 |  | 3.5 | 3.5 |  |
| All-Red Time (s) | 1.0 | 1.0 |  | 1.0 | 1.0 |  | 1.0 | 1.0 |  | 1.0 | 1.0 |  |
| Lost Time Adjust (s) | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 |  |
| Total Lost Time (s) | 4.5 | 4.5 |  | 4.5 | 4.5 |  | 4.5 | 4.5 |  | 4.5 | 4.5 |  |
| Lead/Lag | Lead | Lag |  | Lead | Lag |  | Lag | Lag |  | Lead |  |  |
| Lead-Lag Optimize? | Yes | Yes |  | Yes | Yes |  | Yes | Yes |  | Yes |  |  |
| Recall Mode | None | Min |  | None | Min |  | None | None |  | None | None |  |
| Act Effct Green (s) | 45.3 | 34.7 |  | 40.9 | 32.5 |  | 13.6 | 13.6 |  | 22.4 | 22.4 |  |
| Actuated g/C Ratio | 0.57 | 0.44 |  | 0.52 | 0.41 |  | 0.17 | 0.17 |  | 0.28 | 0.28 |  |
| v/c Ratio | 0.61 | 0.88 |  | 0.73 | 0.65 |  | 0.14 | 0.73 |  | 0.72 | 0.33 |  |
| Control Delay | 15.4 | 30.3 |  | 33.5 | 20.6 |  | 28.5 | 29.5 |  | 45.2 | 16.2 |  |
| Queue Delay | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 |  | 0.0 | 0.0 |  |
| Total Delay | 15.4 | 30.3 |  | 33.5 | 20.6 |  | 28.5 | 29.5 |  | 45.2 | 16.2 |  |
| LOS | B | C |  | C | C |  | C | C |  | D | B |  |
| Approach Delay |  | 27.8 |  |  | 23.1 |  |  | 29.4 |  |  | 29.1 |  |

7255 - Golden Ears Business Park

Lanes, Volumes, Timings

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Approach LOS |  | C |  |  | C |  |  | C |  |  | C |  |
| Queue Length 50th (m) | 16.2 | 87.3 |  | 14.7 | 49.4 |  | 4.1 | 24.1 |  | 16.8 | 14.0 |  |
| Queue Length 95th (m) | 33.1 | 141.7 |  | \#53.2 | 79.3 |  | 10.8 | 45.8 |  | \#31.6 | 27.3 |  |
| Internal Link Dist (m) |  | 366.6 |  |  | 355.9 |  |  | 201.7 |  |  | 192.1 |  |
| Turn Bay Length (m) | 60.0 |  |  | 60.0 |  |  | 15.0 |  |  | 60.0 |  |  |
| Base Capacity (vph) | 453 | 1390 |  | 282 | 1321 |  | 374 | 592 |  | 190 | 757 |  |
| 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 | 0.55 | 0.87 |  | 0.73 | 0.65 |  | 0.08 | 0.47 |  | 0.72 | 0.23 |  |
| Intersection Summary |  |  |  |  |  |  |  |  |  |  |  |  |
| Area Type: Other |  |  |  |  |  |  |  |  |  |  |  |  |
| Cycle Length: 90 |  |  |  |  |  |  |  |  |  |  |  |  |
| Actuated Cycle Length: 79.1 |  |  |  |  |  |  |  |  |  |  |  |  |
| Natural Cycle: 90 |  |  |  |  |  |  |  |  |  |  |  |  |
| Control Type: Actuated-Uncoordinated |  |  |  |  |  |  |  |  |  |  |  |  |
| Maximum v/c Ratio: 0.88 |  |  |  |  |  |  |  |  |  |  |  |  |
| Intersection Signal Delay: 26.5 |  |  |  |  | Intersection LOS: C |  |  |  |  |  |  |  |
| Intersection Capacity Utilization 74.9\% ICU Level of Service D |  |  |  |  |  |  |  |  |  |  |  |  |
| Analysis Period (min) 15 |  |  |  |  |  |  |  |  |  |  |  |  |
| \# 95th percentile volume exceeds capacity, queue may be longer. |  |  |  |  |  |  |  |  |  |  |  |  |

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.


7255 - Golden Ears Business Park
Synchro 10 Report
Creative Transportation Solutions Ltd.
Page 2


[^0]:    7255 －Golden Ears Business Park

[^1]:    255 - Golden Ears Business Park

[^2]:    255 - Golden Ears Business Park

[^3]:    255 - Golden Ears Business Park

[^4]:    255 －Golden Ears Business Park

[^5]:    255 －Golden Ears Business Park

[^6]:    255 - Golden Ears Business Park

[^7]:    255 －Golden Ears Business Park

[^8]:    255 －Golden Ears Business Park

[^9]:    255 －Golden Ears Business Park

[^10]:    255 －Golden Ears Business Park

[^11]:    255 - Golden Ears Business Park

[^12]:    255 －Golden Ears Business Park

