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Beh Industrial Park Traffic Optimization Study

FINAL REPORT

FEBRUARY 22, 2022

TABLE OF CONTENTS

Financial assistance for the preparation of this report was provided by the Federal Highway Administration through the Genesee Transportation Council, and the Town of Ontario. The Genesee Transportation Council – as lead agency – is solely responsible for this report's content, and the views and opinions expressed herein do not necessarily reflect the official views or policy of the U.S. Department of Transportation.

GTC's Commitment to the Public

The Genesee Transportation Council assures that no person shall, on the grounds of race, color, natural origin, disability, age, gender, or income status, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity. GTC further assures every effort will be made to ensure nondiscrimination in all of its program's activities, whether those programs and activities are federally funded or not.

En Español

El Consejo Genesee del Transporte asegura complete implementación del Título VI de la Ley de Derechos Civiles de 1964, que prohíbe la discriminación por motive de raza, color de piel, origen nacional edad, genero, discapacidad, o estado de ingresos, en la provisión de beneficios y servicios que sean resultado de programas y actividades que reciban asistencia financiera federal.

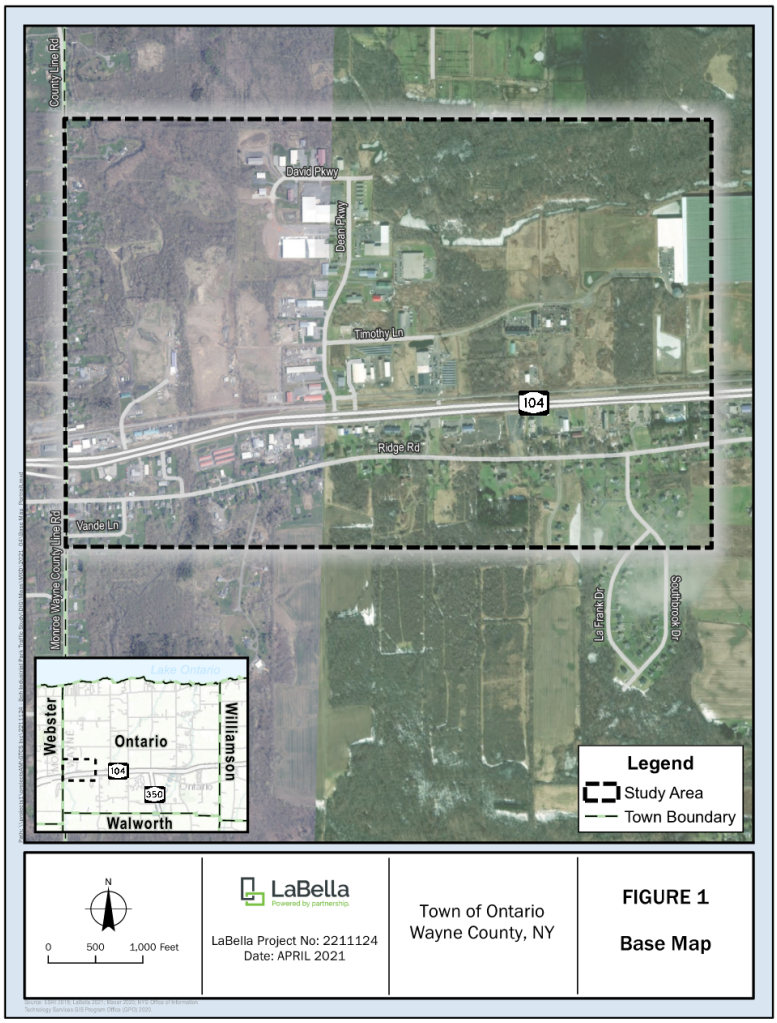
EXECUTIVE SUMMARY

A. Introduction

The Beh Industrial Park is located along NYS Route 104 in the Town of Ontario, Wayne County, New York. The site encompasses properties along Dean Parkway, David Parkway and Timothy Lane and contains commercial and industrial developments of various types and sizes. The industrial park has experienced continual growth over the years, and many of the existing businesses have plans for additional growth and expansion. However, the site is constrained by a single access point at Dean Parkway and NYS Route 104, experiences traffic congestion at this intersection, lacks accommodations for pedestrians, cyclists, and transit users, and has additional infrastructure-related needs.

The purpose of this Traffic Optimization Study is to identify physical and regulatory opportunities within the project area to improve mobility, access and safety for vehicles and multi-modal users, and to provide recommendations that could be implemented by the Town of Ontario to address the site's infrastructure needs. The Study will develop solutions that improve traffic flow and safety for all users and support the site's continued economic growth.

Figure 1 (below) is a base map that depicts the study area of the project, which includes the Beh Industrial Park and adjacent intersections along NYS Route 104. In addition to the immediate Beh Industrial Park site, the NYS Route 104 intersections with Basket Road, County Line Road, Dean Parkway, Lincoln Road, and Lakeside Road were included in the analysis.



B. Existing Studies and Data

An understanding of existing and planned conditions within the study area was achieved by reviewing existing plans and data, analyzing existing traffic operation, observing existing circulation, traffic operation and infrastructure conditions firsthand, and seeking input from local officials regarding future projects and growth that are expected to affect the Beh Industrial Park.

Specific tasks included assessment and familiarization of the study area, reviewing existing studies, data, regulatory framework, and development projections, field observations to assess existing infrastructure and traffic operation, and a traffic assessment (Level of Service, delay and queuing) of intersections within the study area.

The following existing plans and studies were reviewed:

- *Town of Ontario Comprehensive Plan* prepared by Stuart I Brown Associates, 2006
- *Onward Ontario* prepared by MRB Group, Adopted December 20, 2021
- *Regional Engagement: Revitalization Opportunity Report – Wayne County (2016)*
- *Wayne County Economic Development Strategic Plan* prepared by Stuart I Brown Associates, November 2006
- *Route 104 Corridor Trail Feasibility Assessment and Design Recommendations* prepared by EDR Companies, August 2011
- *OMID Strategic Plan* Technical Memo #2 materials, prepared by Fisher Associates, March 2021

Existing traffic data was reviewed, including traffic volumes (Average Daily Traffic Volumes), functional classification, ownership / jurisdiction, percent trucks, and speed. New intersection turning movement counts were performed at six (6) intersections within the study area, including:

- NYS Route 104 and Basket Road
- NYS Route 104 and County Line Road
- NYS Route 104 and Dean Parkway
- NYS Route 104 and Lincoln Road
- NYS Route 104 and Lakeside Road
- Dean Parkway and Timothy Lane

The counts were collected by Tri-State Traffic Data on March 30, 2021 during the morning and afternoon commuter peak periods. Peak hours for analysis were determined for each period. The peak hour data was reviewed against historic traffic volumes along Route 104 and was determined to be approximately 10% to 40% lower (varies by segment, direction and time of day), which is likely attributed to the COVID-19 pandemic. Therefore, the 2021 peak hour traffic counts were increased accordingly to align with the historic data.

Overall intersection traffic operation was determined to be Level of Service "C" or better at each intersection during both morning and afternoon peak hours, which is considered acceptable traffic operation. Many left turn, U-turn and side street movements were found to operate with longer delays and Level of Service "D" and "E". This is a result of the Route 104 intersections being programmed / timed to prioritize efficiency of the Route 104 thru movements. Also, most left turns and U-turns operate as protected-only movements (traffic must wait for a green arrow) for safety reasons due to the high speed and divided highway character of the Route 104 corridor, which increases delay.

Crash data for the Beh Industrial Park study project area was obtained from the Accident Location Information System (ALIS) via the NYSDOT. The data spans a six-year period from January 1, 2014 to December 31, 2019, and 354 crashes were documented. The predominant crash type was Rear End (36%) followed by Animal (21%). Forty-four percent (44%) of crashes resulted in property damage, while 37% were classified as Non-Reportable and 19% resulted in injury. There was one fatality, which occurred at the NYS Route 104 and Basket Road intersection as a result of a head-on collision.

One crash involving a pedestrian occurred on NYS Route 104 near Lincoln Road, which resulted in injury. The crash was attributed to the pedestrian crossing at a location with no signal or crosswalk.

C. Community Engagement

This plan was prepared with significant involvement from a committee of stakeholders, targeted groups of affected property owners, and Town of Ontario residents.

A Steering Committee of Local, County and State agency representatives was assembled and met regularly throughout the process. In addition to the consultant team, Steering Committee members included the following:

- **Town of Ontario:** Frank Robusto, Town Supervisor; Adam Cummings, Town Engineer; William Riddell, Director of Economic Development
- **Wayne County:** Brian Pincelli, Director of Economic Development
- **New York State Department of Transportation:** Zachary Starke, Region 4 Permits; Andrew Quinn, Region 4 Traffic & Safety
- **Genesee Transportation Council:** Jody Binnix, Program Manager

Several public outreach efforts were undertaken to inform the public about the project and solicit feedback from residents, property owners and users of the Beh Industrial Park, including:

- Meeting with business owners within the Beh Industrial Park, targeted towards larger tenants and those with known plans for expansion (June 25, 2021).
- Public Informational Meeting with project introduction and one-on-one discussion (September 23, 2021)
- Community Survey available online and in-person following the first Public Meeting
- Public Informational Meeting presenting the draft report and recommendations (January 20, 2022)
- Project Website hosted on the Public Input platform, accessed at https://www.publicinput.com/BehTrafficStudy, containing project information and documents.

D. Needs and Opportunities

An understanding of the specific physical, operational, design, and regulatory needs and opportunities within the Beh Industrial Park was obtained by reviewing existing data, site conditions and traffic operation. This understanding was enhanced by firsthand observations of existing circulation, traffic operation, and infrastructure, seeking input from local officials and business owners regarding future projects and growth within the Beh Industrial Park, and assessing opportunities to improve safety, mobility, and connectivity for all road users.

Local Market Trends for Future Growth and Development

A market trend analysis identified unmet demand for retail within the Town of Ontario, including Home Furnishing Stores, Specialty Food Stores, Clothing Stores, Office Supplies, and others. Based on current zoning, these types of land uses are most likely to be located along the Route 104 corridor. Therefore, it can be expected that traffic volumes along Route 104 and adjacent roadways would increase over time as growth in retail development is experienced within the Town.

Planned Growth and Expansion at the Beh Industrial Park

Coordination was undertaken with the Town of Ontario and businesses within the Beh Industrial Park to determine plans for future expansion.

Expansion plans and employment projections were provided by the following companies:

- Intergrow (663 Timothy Lane): Phase 2 (under construction) and Phase 3 (estimated construction in 2024), estimated 220 new employees
- Optimax (6367 Dean Pkwy): 75,000 sf future expansion, 300 new employees
- OptiPro (6368 Dean Pkwy): future expansion, 125 new employees
- Peak Fabrication (6314 Dean Pkwy): future expansion, 75 new employees
- Ranger Design Building (6377 Dean Pkwy): Potential future redevelopment, approx. 100,000 sf

Trip generation estimates indicate that the proposed expansion projects would result in a total of 372 new vehicular trips (282 entering and 90 exiting) during the morning peak hour and 367 new vehicular trips (123 entering and 244 exiting) during the afternoon peak hour.

To account for unforeseen future growth within the Beh Industrial Park and overall study area, a growth rate of 1% per year was applied to all traffic volumes at intersections within the study area. A five-year study period was assumed, with a future analysis year of 2026. This results in a 5% increase in background traffic volumes at Year 2026.

Future Traffic Operation

A traffic analysis was performed to determine traffic operation during the morning and afternoon peak hours at the analysis year 2026. This represents a five-year buildout period where the expansion projects are expected to occur. The analysis was performed using Synchro traffic software, Version 11.

Two scenarios were analyzed at Year 2026: a Background scenario and a Full Development scenario. The Background scenario includes a general growth in traffic volumes of 1% per year, but does not include any of the identified Beh Industrial Park expansion projects. All existing lane geometry and traffic signal timing is maintained.

The Full Development scenario includes the background growth plus the new vehicular trips associated with the expansion projects. All existing lane geometry and traffic signal timing is maintained.

The Background scenario traffic analysis indicates similar traffic operation to Existing conditions, with modest increases in delay for individual turning movements and overall intersections. All overall intersection LOS is projected to be "D" or better. All individual movements are projected to operate at LOS "E" or better, except the westbound U-turn movement at the Route 104 & Dean Parkway intersection, which is projected to operate at LOS "F" during the morning peak hour. This U-turn movement is low-volume and should not be a significant traffic concern, but may warrant periodic monitoring or modifications to traffic signal timing.

The Full Development scenario traffic analysis indicates similar traffic operation to Background conditions at the Route 104 intersections with Basket Road, County Line Road, Lincoln Road, and Lakeside Road, with modest increases in delay for individual turning movements and overall intersections. These intersections are all projected to operate with overall intersection LOS "D" or better and individual movement LOS "E" or better during both peak hours.

Potential lane and traffic signal improvements at the Route 104 and Dean Parkway intersection were modeled using Synchro to determine if the Level of Service could be improved to acceptable levels. The improvements include:

- Lengthen the Route 104 eastbound left turn lane to 550 ft
- Construct new Dean Parkway southbound right turn lane – 200 ft length
- Modify traffic signal timing during peak hours

The analysis indicates that overall intersection operation improves to LOS "D" or better, but LOS "F" is still expected for certain movements during both peak hours. This analysis indicates that more extensive improvements, such as widening Route 104 to provide an additional eastbound left turn lane

or constructing a second point of access to the industrial park, would be required to achieve acceptable traffic operation with the identified developments within the Beh Industrial Park.

Summary of Needs and Opportunities

Existing site infrastructure and facilities for vehicles, pedestrians, and bicycles were analyzed and assessed in the field to determine if improvements are needed to address mobility and safety concerns, circulation, and connectivity. A summary of needs and opportunities for each group of users is as follows:

Traffic Operation Needs and Opportunities:

- Lengthen the Route 104 eastbound left turn lane at Dean Parkway to accommodate peak hour traffic volumes and improve safety.
- Install a southbound right turn lane on Dean Parkway at Route 104.
- Improve or install new vehicle detection (loops or overhead sensors) on Dean Parkway at Route 104. Additional detection is needed north of the railroad tracks to accommodate trucks that stop and wait ahead of the tracks.
- Provide new site access point to Route 104 or a surrounding roadway such as County Line Road or Lakeside Road.

Note: *NYSDOT is planning to construct improvements at the Route 104 and Dean Parkway intersection, including lengthening the Route 104 eastbound left turn lane, replacing the traffic signal, and installing new vehicle detection systems, as part of an upcoming preventive maintenance and intersection improvement project.*

Pedestrian and Bicycle Needs and Opportunities:

- Construct a sidewalk or trail system within the Beh Industrial Park to provide a complete pedestrian network within the site. Pedestrian facilities should meet current ADA and PROWAG design standards.
- Provide a pedestrian connection from the Beh Industrial Park to Route 104.
- Add crosswalks and pedestrian signal equipment to the signalized intersections within the study area to improve pedestrian safety.
- Delineate pedestrian routes across driveways and parking areas.
- Encourage individual businesses to install bicycle amenities such as bike racks and promote bicycle usage, which could reduce vehicular trips to and from the site.

Note: *NYSDOT is planning to install pedestrian signals, crosswalks, and sidewalk pads at the Route 104 intersections with Basket Road, County Line Road, Dean Parkway, Lincoln Road and Lakeside Road as part of an upcoming preventive maintenance and intersection improvement project.*

Transit Needs and Opportunities:

- Improve pedestrian routes between existing transit stops and the Beh Industrial Park (install crosswalks and pedestrian signal equipment at intersections, and sidewalks within the Beh site).
- Encourage RTS to provide more direct service to the Beh Industrial Park.
- Encourage individual businesses to promote transit usage, which could reduce vehicular trips to and from the site.

Pavement Needs and Opportunities:

- Rehabilitate the pavement on Dean Parkway and Timothy Lane where needed.
- Install pavement markings including double yellow center stripes and white edge stripes.
- Evaluate areas along the edge of the road where rutting and off-tracking are present to determine if widening, shoulder improvements or driveway modifications are needed.

Note: *The Town of Ontario plans to mill and overlay the asphalt pavement on Dean Parkway once heavy construction is completed on development sites such as Intergrow.*

Drainage Needs and Opportunities:

- Improve drainage infrastructure including driveway culverts, inlets and headwalls where needed.
- Ensure open & closed drainage systems are regularly cleaned and maintained to promote positive drainage.

Note: *The Town of Ontario is currently evaluating drainage improvements in the vicinity of the Beh Industrial Park that would benefit overall drainage conditions within the project area.*

Traffic Signal Needs and Opportunities:

- Add high-visibility back plates to traffic signals to improve visibility and safety.
- Install pedestrian signal equipment and crosswalks at signalized intersections to improve pedestrian safety.

Note: *NYSDOT is planning to replace the traffic signals at the Route 104 intersections with Basket Road, County Line Road, Dean Parkway, Lincoln Road and Lakeside Road as part of an upcoming preventive maintenance and intersection improvement project. The new signals would include mast arms and high-visibility back plates.*

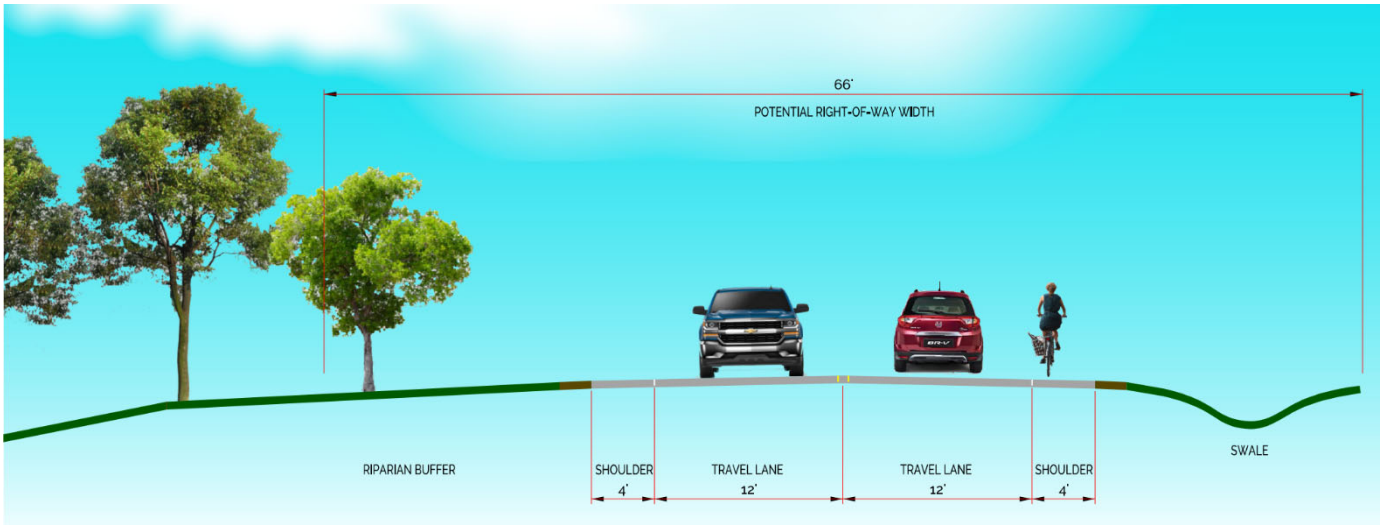
E: Corridor Recommendations

Recommendations have been developed to improve mobility and safety for all users of the Beh Industrial Park, considering the identified needs and opportunities. The recommendations include a new point of access to the Beh Industrial Park, improvements to the existing access at Dean Parkway and Route 104, multi-modal improvements within the study area, and infrastructure upgrades within the Beh Industrial Park. Conceptual cost estimates, potential funding sources, and implementation strategies have also been developed for each recommendation.

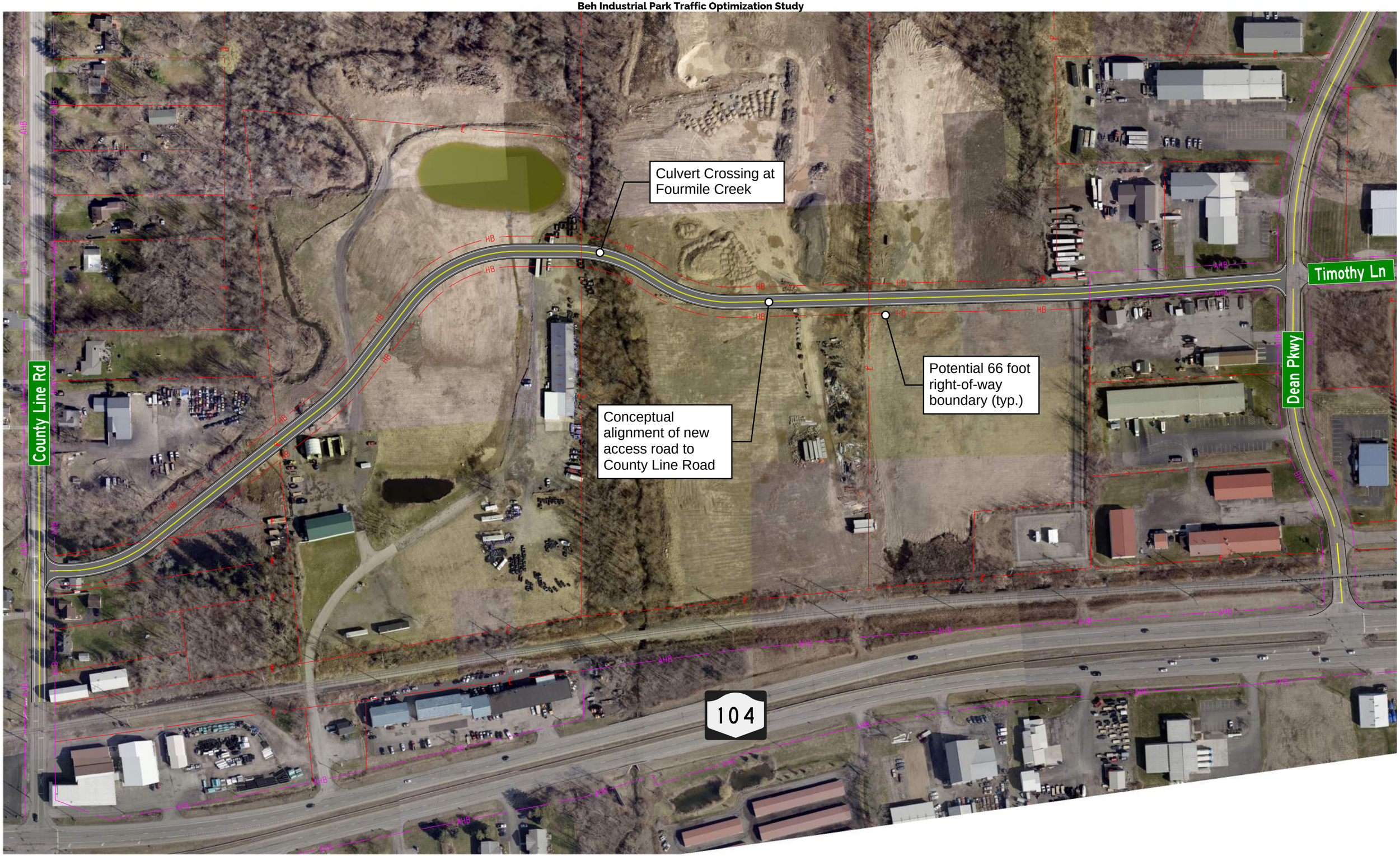
New Access to County Line Road

It is recommended that a new 3,000 linear feet access road be constructed between Timothy Lane and County Line Road. The new access would alleviate traffic congestion at the Route 104 and Dean Parkway intersection, improve emergency response time to the site, and improve access to property and potential developable land in the western portion of the Beh Industrial Park.

The conceptual plan of the new access road to County Line Road is depicted on the following page. The conceptual typical section is depicted below.



The new access road is expected to cost approximately $3.2 million to construct. The cost includes all pavement items, a culvert crossing Fourmile Creek, extension of water and sewer lines along the roadway, incidentals such as work zone traffic control, erosion and sediment control, survey and engineering design, and a 20% contingency.



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BEH INDUSTRIAL PARK
CONCEPTUAL SITE ACCESS PLAN

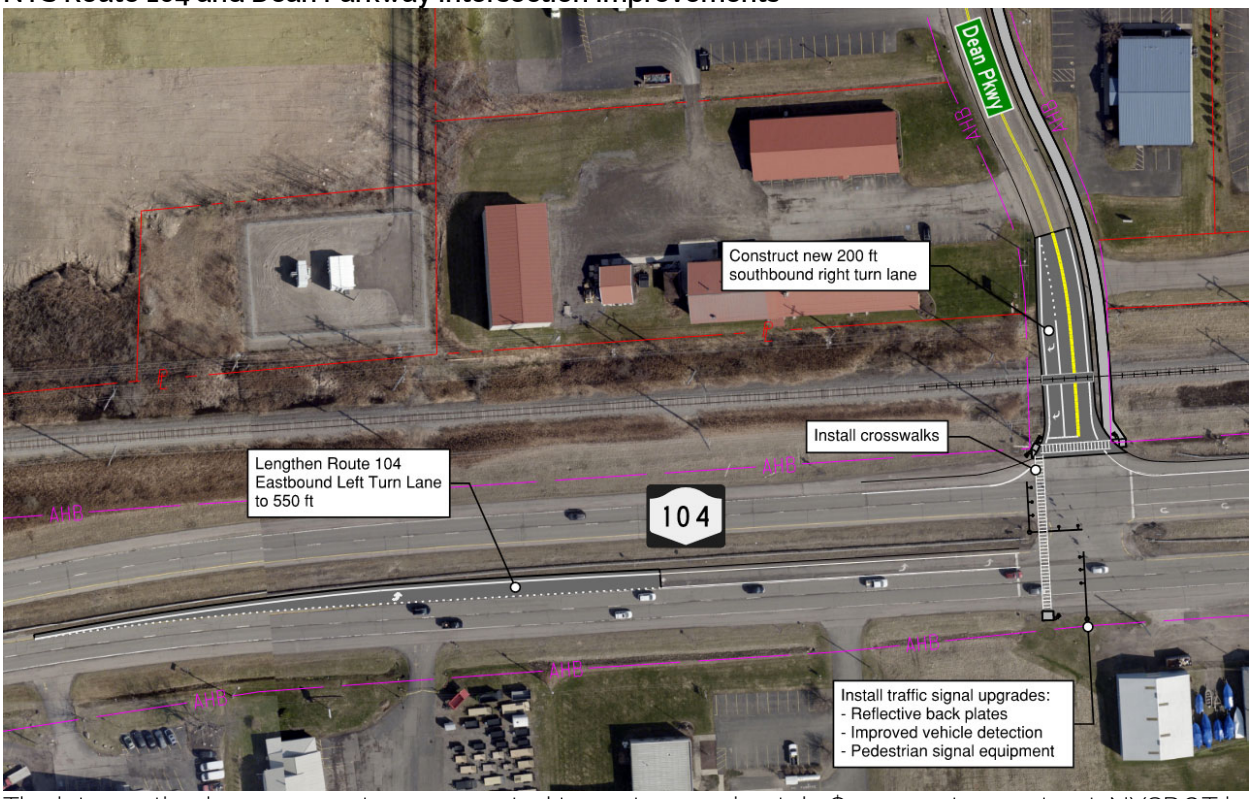
DRAWING NO.: Figure 14 | SCALE: 1" = 200'

GENESEE TRANSPORTATION COUNCIL

BEH INDUSTRIAL PARK
TRAFFIC OPTIMIZATION STUDY
TOWN OF ONTARIO, WAYNE COUNTY

Potential funding sources include the Transportation Improvement Program (TIP), Empire State Development (ESD) Capital Grant, Community Development Block Grant (CDBG), and Rebuilding America Infrastructure with Sustainability and Equity (RAISE) Grant. The Infrastructure Investment and Jobs Act recently passed by Congress may have additional funding opportunities.

NYS Route 104 and Dean Parkway Intersection Improvements



The intersection improvements are expected to cost approximately $345,000 to construct. NYSDOT is planning to lengthen the eastbound left turn lane and replace the traffic signal including pedestrian upgrades as part of an upcoming capital project. Constructing the southbound right turn lane on Dean Parkway would be the responsibility of the Town of Ontario, at a cost of approximately $64,000. The right turn lane will require additional traffic studies and review and approval by NYSDOT.

Sidewalk / Trail System within Beh Industrial Park

It is recommended that a new sidewalk or trail system be constructed within the Beh Industrial Park, A new sidewalk / trail system would provide pedestrian connections between businesses within the Beh Industrial Park as well as between the site and Route 104. It would also provide health and recreational benefits and accommodate a connection to a future Route 104 trail system.

The recommended pedestrian network would include a 10 ft wide trail along Dean Parkway (Route 104 to Timothy Lane) and Timothy Lane (Dean Parkway to Intergrow), and a 5 ft wide sidewalk along Dean parkway (Timothy Lane to David Parkway). Construction cost is estimated at $710,000, and potential funding opportunities include the Transportation Alternative Program (TAP), Climate Smart Communities (CSC), Environmental Protection Fund, TIP, ESD Capital Grant, and CDBG program.

Traffic Signal and Pedestrian Improvements at NYS Route 104 Intersections with Basket Road, County Line Road, Lincoln Road and Lakeside Road

It is recommended that traffic signal upgrades be implemented at the NY Route 104 intersections with Basket Road, County Line Road, Lincoln Road and Lakeside Road. The upgrades would improve traffic flow along Route 104 and adjacent side streets, provide high-visibility treatments to improve safety for all users, and provide infrastructure for safe pedestrian crossings of Route 104. The upgrades include new signals with reflective back plates, pedestrian signal equipment, crosswalks, and sidewalk pads.

NYSDOT plans to implement traffic signal upgrades at the Route 104 intersections with Basket Road, County Line Road, Lincoln Road and Lakeside Road as part of an upcoming capital project.

Infrastructure Improvements within Beh Industrial Park

It is recommended that pavement areas along Dean Parkway and Timothy Lane in need of rehabilitation receive a mill and overlay treatment to extend the life and maintain safe and efficient travel along the roadway. Drainage conditions within the Beh Industrial Park should be regularly monitored. Infrastructure within the right-of-way including driveway culverts, closed drainage systems, and roadside swales should be regularly inspected, cleaned, and replaced as needed.

The recommended mill and overlay treatment is expected to cost approximately $315,000. The cost for drainage improvements would vary based on the type of work and location.

F. Implementation and Follow-on Activities

Pursue Funding Opportunities

This Plan provides a tool for the Town of Ontario, Wayne County and other partners to actively engage State and Federal officials and justify that the project is a priority for the Town and users of the Beh Industrial Park. The Town and partnering agencies should agree on priority project(s) to pursue (such as the new access road) and select funding opportunities that best align with the project(s), and also begin to plan for any local matching funds that may be required for grant programs.

Initiate Design of New Access Road

If the Town of Ontario intends to pursue construction of a new access road connecting Timothy Lane to County Line Road, the Town should initiate the process by engaging a design professional and beginning tasks such as survey, environmental studies, and conceptual design of the new roadway. Establishing the exact alignment of the new road will require close coordination with property owners within the affected area and establishment of a right-of-way for the road by way of property acquisition. Tasks required for subsequent design phases (Preliminary / Final Design) may vary based on funding sources used and potential involvement of State or Federal partnering agencies.

Integrate Plan Recommendations in the Development Review Process

The Beh Industrial Park is expected to experience continual growth and development in the coming years. As individual applications for development occur, the Town of Ontario should ensure that the recommendations within this Plan are considered during the site plan review and approval process.

Maintain Close Coordination with NYSDOT and Other Partnering Agencies

As development occurs within the Beh Industrial Park, NYSDOT should continually monitor traffic operation at the Route 104 and Dean Parkway intersection and other intersections within the study area to ensure that safe and efficient traffic operation is maintained for all users of the Beh Industrial Park. Periodic signal timing and coordination adjustments may be needed as new and expanded developments within the park are completed.

Implementation of the Plan's recommendations may require coordinating with and obtaining permits from local, county and state agencies. The new access road connection at County Line Road will require a permit from the Monroe County Department of Transportation. Work within the Route 104 right-of-way will require a work permit from the New York State Department of Transportation.

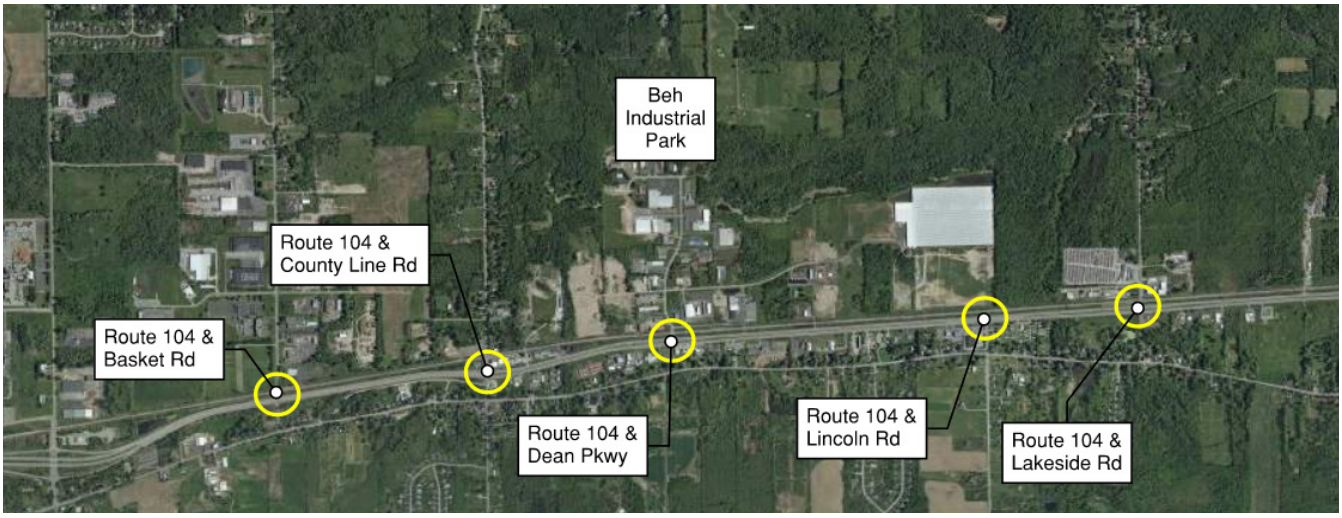
I. INTRODUCTION

The Beh Industrial Park is located along NYS Route 104 in the Town of Ontario, Wayne County, New York. The site encompasses properties along Dean Parkway, David Parkway and Timothy Lane and contains commercial and industrial developments of various types and sizes. The industrial park has experienced continual growth over the years, and many of the existing businesses have plans for additional growth and expansion. However, the site is constrained by a single access point at Dean Parkway and NYS Route 104, experiences traffic congestion at this intersection, lacks accommodations for pedestrians, cyclists, and transit users, and has additional infrastructure-related needs.

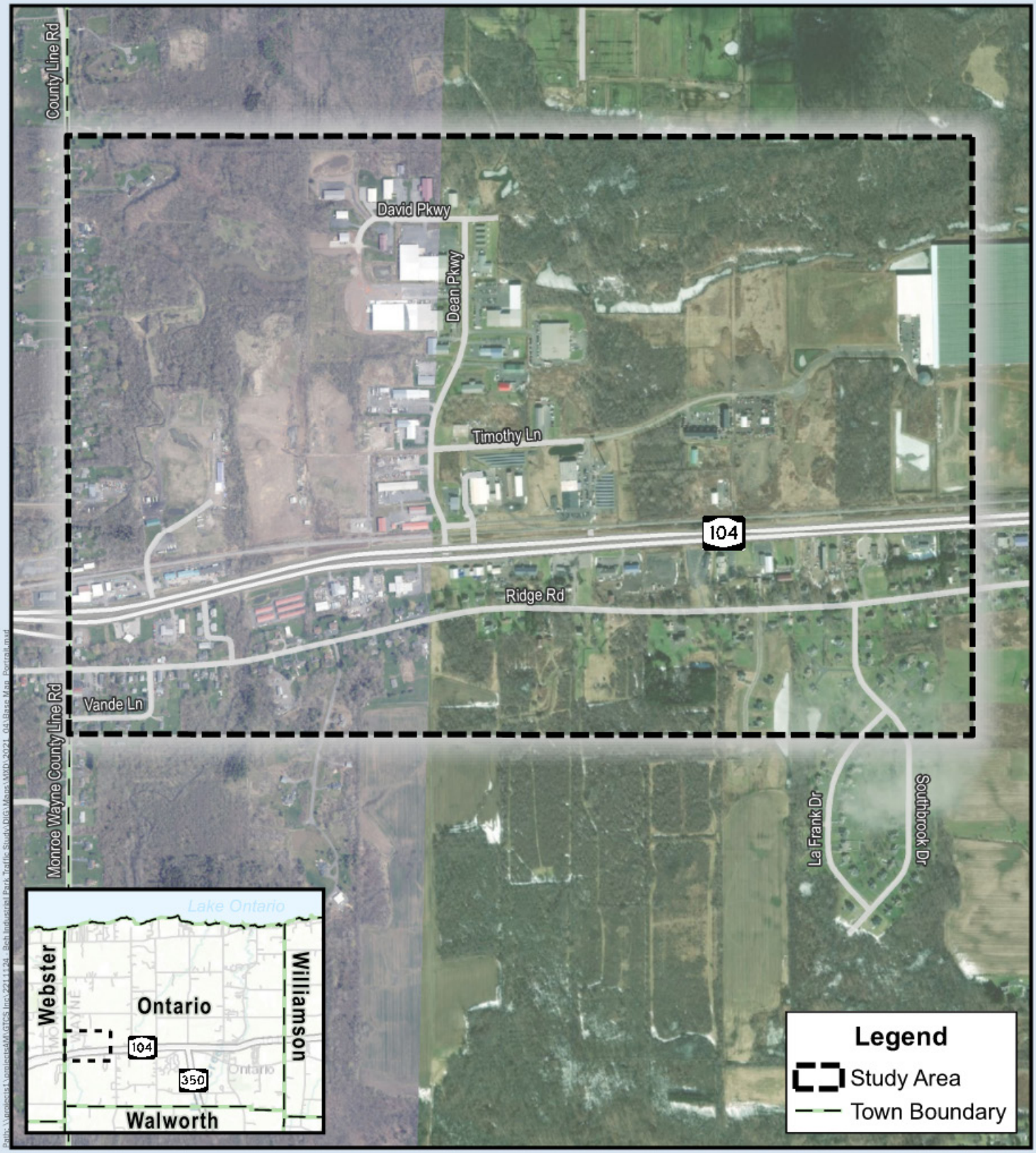
The purpose of this Traffic Optimization Study is to identify physical and regulatory opportunities within the project area to improve mobility, access and safety for vehicles and multi-modal users, and to provide recommendations that could be implemented by the Town of Ontario to address the site's infrastructure needs. The Study will develop solutions that improve traffic flow and safety for all users and support the site's continued economic growth.

The Project was guided by a Steering Committee including representatives from the Town of Ontario, Wayne County, Genesee Transportation Council (GTC), and New York State Department of Transportation (NYSDOT). In addition, the public was engaged via informational meetings and a survey. Additional information regarding the steering committee and public involvement activities is described in Section III: Community Engagement.

Figure 1 (following page) is a base map that depicts the study area of the project, which includes the Beh Industrial Park and adjacent intersections along NYS Route 104. In addition to the immediate Beh Industrial Park site, the NYS Route 104 intersections with Basket Road, County Line Road, Dean Parkway, Lincoln Road, and Lakeside Road were included in the analysis.



Beh Industrial Park and Studied Intersections along NYS Route 104



N

0 500 1,000 Feet

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LaBella Project No: 2211124
Date: APRIL 2021

Town of Ontario
Wayne County, NY

FIGURE 1

Base Map

Source: ESRI 2018; LaBella 2021; Maxar 2020; NYS Office of Information Technology Services GIS Program Office (GPO) 2020.

II. EXISTING AND PLANNED CONDITIONS

An understanding of existing and planned conditions within the study area was achieved by reviewing existing plans and data, analyzing existing traffic operation, observing existing circulation, traffic operation and infrastructure conditions firsthand, and seeking input from local officials regarding future projects and growth that are expected to affect the Beh Industrial Park.

Specific tasks included assessment and familiarization of the study area, reviewing existing studies, data, regulatory framework, and development projections, field observations to assess existing infrastructure and traffic operation, and a traffic assessment (Level of Service, delay and queuing) of intersections within the study area.

A. Existing Studies and Data

Existing plans and studies were reviewed, and information relevant to this study is summarized below.

Town of Ontario Comprehensive Plan prepared by Stuart I Brown Associates, 2006
The Town hired Stuart I. Brown Associates to assist with the development and adoption of their most recent comprehensive plan. The planning process began in 2003 and included monthly Comprehensive Plan Committee meetings, a survey of residents, roundtables and stakeholder interviews, and several public hearings. The objective of this plan was to create a document that guided development decisions that would affect the Town's future.

Relevant Goals

- Maintain a supportive business environment that encourages economic development while strengthening and retaining existing businesses and industries.
- Construct and maintain the infrastructure necessary to serve existing and future business development
- Provide appropriate access to properties along Route 104.
- Retain Route 104 as a high-speed thoroughfare for east-west traffic, while supporting existing and accommodating additional commercial and industrial development.

Recommendations

- Recruit industrial businesses to locate operations within existing industrial parks
- Work with the NYSDOT, landowners and private developers to construct service roads parallel to Route 104 to provide access to new and existing businesses
- Pursue funding to construct an access road between Dean Parkway and Lincoln Road to service industrially zoned properties in this area
- Work with appropriate agencies to remove the railroad tracks along Route 104 and to construct access roads and trails along appropriate sections of the right-of-way
- Develop a sidewalk plan and policy that addresses the extension of sidewalks as well as maintenance and financing.
- Work with local bicycling clubs to create dedicated bicycle routes along Lake Road and in other suitable locations.
- Develop trails for bicycling, hiking and other uses including equestrian use that connect with neighboring systems.

Onward Ontario prepared by MRB Group, Adopted December 20, 2021
This document is an update to the Town's Comprehensive Plan and strives to shape the next chapter of the Town of Ontario's future.

Relevant Goals

- Cultivate local livelihoods and thriving businesses – nurture small business and bolster industrial anchors so that the economic ecosystem remains innovated, regionally connected and rooted in local assets. Ensure the availability of quality jobs and growth opportunities for the current and future workforce.
- Support local agribusiness and renewable energy sectors.
- Strategically expand water, sewer, transportation, broadband and cellular infrastructure to ensure market readiness.
- Harness Route 104 – capitalize on large volume of traffic passing through Ontario each day.
- Enhance connectivity between Route 104, the Ridge Road business district, the lakefront, and other community anchors.
- Improve the safety of Route 104 for vehicles and people.
- Transform the Town's streetscapes - support community health and a vibrant public realm by developing an interconnected network of safe, accessible bike and pedestrian routes, and welcoming public spaces.
- Make streets safe for bikes and pedestrians. Interconnect and extend existing local and regional trail networks.

Recommendations

- Implement the recommendations of the Beh Industrial Park Traffic Optimization Study.
- Engage NYSDOT to identify and evaluate near-term opportunities to improve safety and vehicular access to and between properties along Route 104.
- As streets are built or re-built, ensure that equal priority is given to varying modes of transportation – particularly pedestrians and bicyclists.
- Identify opportunities for strategic investments in new and enhanced walking and biking trails to connect community destinations.

Regional Engagement: Revitalization Opportunity Report – Wayne County (2016)
The report was created for the Genesee/Finger Lakes Regional Planning Council (G/FLRPC) and New York State Department of State (NYS DOS) with funds provided through the Brownfield Opportunity Area Program.

The report provides an outline of existing conditions as well as a detailed overview of economic development, community development and land use through the lenses of the following subject matters: Land Use; Brownfields; Economic Distress; Downtowns; Tourism and Recreation; Waterfronts; Environmental; Environmental/ Water and Natural Resources; Energy; Buildings and Housing; Infrastructure; and Preservation/Cultural.

Priority Projects

- Assist in the expansion of Optimax Systems, Inc. in the Town of Ontario
- Complete the construction of Timothy Lane from Beh to Lincoln Road to develop access for the industrial land north of Route 104 and the Ontario Midland Railroad between Lincoln Road & Dean Parkway in Ontario.

Wayne County Economic Development Strategic Plan prepared by Stuart I Brown Associates, November 2006
The Wayne County Industrial Development Agency (WCIDA) hired Stuart I. Brown Associates to assist with the development and adoption of a Strategic Plan for Economic Development. The process began in 2005 and over the course of the project included 10 separate Steering Committee meetings; interviews with industrial representatives and government officials; and inventory and analysis of existing conditions including a Strength, Weakness, Opportunity & Threat (SWOT) analysis.

Key Principles

1. Support Existing Businesses
2. Promote Economic Growth in Targeted Industry "Clusters"
    - Agriculture-related manufacturing
    - Sustainable Energy
    - Optics and Technology-based manufacturing
    - Equipment manufacturing
3. Invest in Infrastructure, Access and Sites
4. Expand Workforce Capabilities
5. Create an Environment that is Conducive to Entrepreneurship
6. Build Effective Partnerships
7. Improve Communities

Relevant Goals and Recommended Actions
Principal 3 Goals:

- Finance and construct infrastructure (roads, sewer, water, broadband, etc.) improvements at strategic locations as needed to encourage economic development.
- Provide a range of "shovel-ready" sites and ready-to-occupy shell buildings for new and relocated businesses, with a focus on sites located within Empire Zones.
- Complete infrastructure improvements so that all industrial parks are "shovel ready."

Route 104 Corridor Trail Feasibility Assessment and Design Recommendations prepared by EDR Companies, August 2011

- Examines feasibility of constructing a 17-mile trail parallel to NYS Route 104 between the Village of Webster and Village of Sodus.
- Preferred alignment includes utilizing the existing rail corridor from Salt Road to Dean Parkway, and new 10 ft wide trails along Dean Parkway and Timothy Lane through the Beh Industrial Park site.
- Preferred alignment does not appear feasible considering recent development along Timothy Lane, such as Intergrow.

OMID Strategic Plan Technical Memo #2 materials, prepared by Fisher Associates, March 2021

- Plan examines feasibility of development sites along the Ontario Midland rail corridor.
- Potential Development Sites #4 and #8 are on Timothy Lane. Sites are favorable for development due to their location within an existing industrial park, proximity to the rail line and Route 104, and favorable zoning.

Potential Development Site #4 and #8, per OMID Strategic Plan

Preliminary recommendations of the *OMID Strategic Plan* include:

- Extend Timothy Lane west to County Line Road to provide another ingress/egress connection for industrial sites and to facilitate subdivision of sites currently zoned industrial.
- Extend Timothy Lane east and Lincoln Road north to form an intersection to provide another ingress/egress connection for industrial sites and to facilitate subdivision of sites currently zoned industrial.
- Complete a traffic impact study and necessary approvals to facilitate extension of Timothy Lane and Lincoln Road.
- Extend utility and communication services along extended Timothy Lane and Lincoln Road.
- Work with landowners to plan road extensions and subdivision of land for rail-oriented development.
- Examine feasibility of a rail spur into Beh Industrial Park: Facilitate discussion with landowners and OMID Corp. and examine feasibility of a new rail spur along the western edge of the Beh Industrial Park that would facilitate rail use from existing industrial businesses on the western side of Dean Parkway and future rail-oriented development along the extension of Timothy Lane to County Line Road. This rail spur would extend north from the OMID right-of-way using a small portion of #205 Route 104 (Tax ID 1117-00-060709) and/or 239 Route 104 (Tax ID 61117-00-111741).

B. Traffic Data

The Beh Industrial Park is served by internal site roadways including Dean Parkway, Timothy Lane, and David Parkway. Dean Parkway connects to NYS Route 104, an east/west arterial that traverses Wayne County and connects the site to population centers such as Rochester. Other adjacent roadways include County Line Road, Lincoln Road and Lakeside Road.

Existing traffic data was reviewed, including traffic volumes (Average Daily Traffic Volumes), functional classification, ownership / jurisdiction, percent trucks, and speed. The existing data is depicted on Figure 2.

Traffic Volumes

New intersection turning movement counts were performed at six (6) intersections within the study area, including:

- NYS Route 104 and Basket Road
- NYS Route 104 and County Line Road
- NYS Route 104 and Dean Parkway
- NYS Route 104 and Lincoln Road
- NYS Route 104 and Lakeside Road
- Dean Parkway and Timothy Lane

The counts were collected by Tri-State Traffic Data on March 30, 2021 during the morning and afternoon commuter peak periods. Peak hours for analysis were determined for each period. The peak hour data was reviewed against historic traffic volumes along Route 104 and was determined to be approximately 10% to 40% lower (varies by segment, direction and time of day), which is likely attributed to the COVID-19 pandemic. Therefore, the 2021 peak hour traffic counts were increased accordingly to align with the historic data.

Peak hour intersection traffic volumes are depicted on Figure 3.

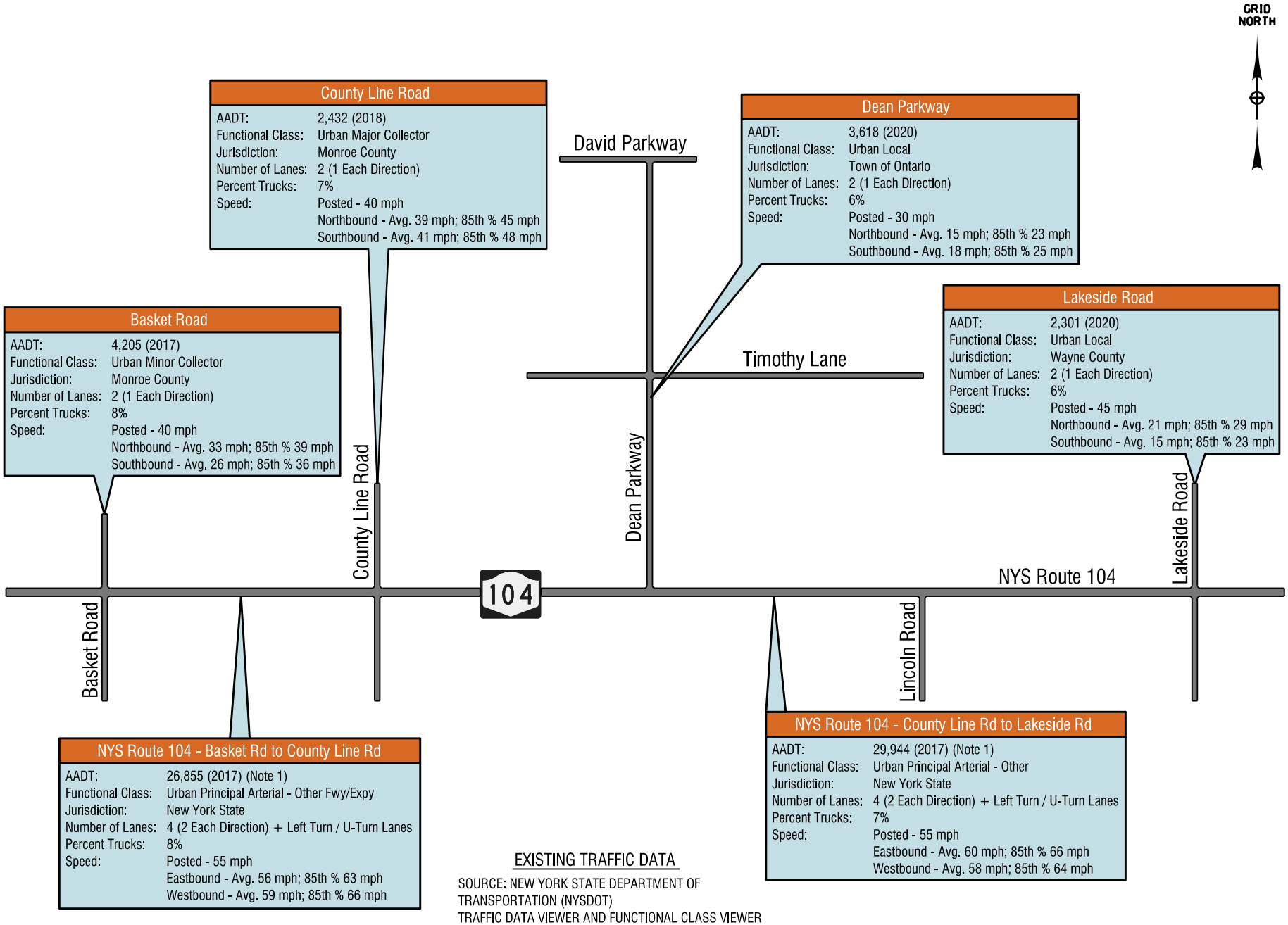
Traffic Operation (Level of Service)

Traffic operation is expressed as Level of Service (LOS), which is a range from "A" to "F" indicating the delay that the average vehicle experiences while traveling through the intersection. Generally, in an urban / suburban setting such as the project area, a Level of Service from "A" to "D" is considered acceptable. Table 1 summarizes the LOS criteria for signalized and unsignalized intersections.

Table 1: Level of Service Criteria

Level of Service	Signalized Intersection Control Delay per Vehicle (seconds)	Unsignalized Intersection Control Delay per Vehicle (seconds)
A	< 10	< 10
B	10 to 20	10 to 15
C	20 to 35	15 to 25
D	35 to 55	25 to 35
E	55 to 80	35 to 50
F	> 80	> 50

Existing traffic operation for the morning and afternoon peak hours was analyzed using Synchro traffic software, Version 11. Table 2 summarizes the Level of Service, delay and 95th Percentile Queue Length for the existing (Year 2021) AM and PM peak hours. Capacity analysis reports are included in Appendix A.



EXISTING TRAFFIC DATA

SOURCE: NEW YORK STATE DEPARTMENT OF TRANSPORTATION (NYSDOT)
TRAFFIC DATA VIEWER AND FUNCTIONAL CLASS VIEWER

Notes:

1. Data from Year 2020 is available, but was collected during the COVID-19 pandemic and was therefore excluded.
2. NYSDOT data not available for Lincoln Road, Timothy Lane and David Parkway.

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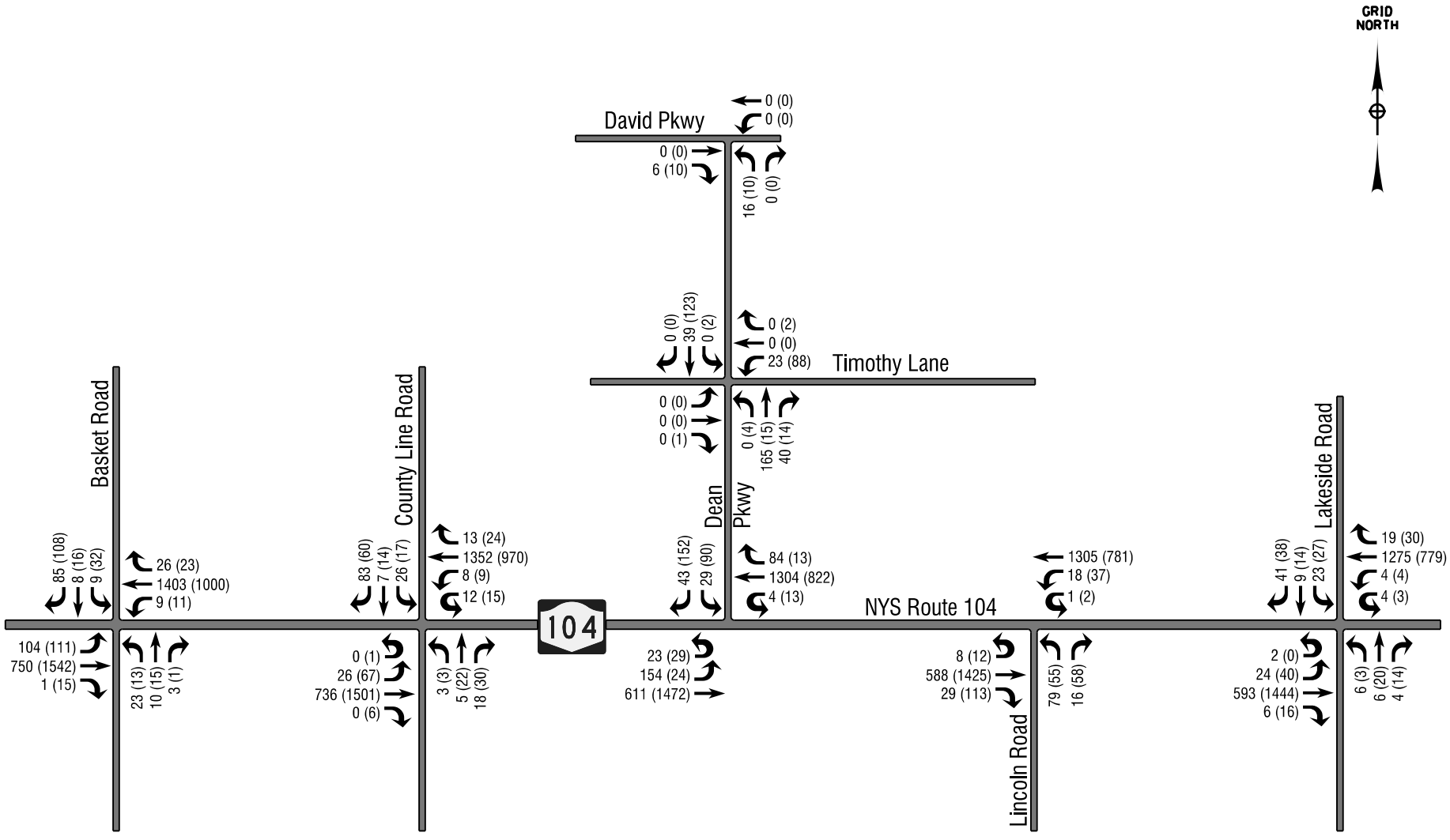
EXISTING TRAFFIC DATA

DRAWING NO.: FIGURE 2 | SCALE: NTS

BEH INDUSTRIAL PARK
TRAFFIC OPTIMIZATION STUDY

TOWN OF ONTARIO, WAYNE COUNTY

Beh Industrial Park Traffic Optimization Study



EXISTING (2021)
PEAK HOUR
TRAFFIC VOLUMES

XX (XX) = AM (PM) PEAK HOUR VOLUME

LaBella Powered by partnership.

GTC

EXISTING PEAK HOUR
TRAFFIC VOLUMES

DRAWING NO.: FIGURE 3

SCALE: NTS

BEH INDUSTRIAL PARK
TRAFFIC OPTIMIZATION STUDY

TOWN OF ONTARIO, WAYNE COUNTY

Table 2: Summary of Traffic Operation (Level of Service, Delay, and Queue)

Intersection	Approach	Movement	Existing (2021) AM Peak Hour		Existing (2021) PM Peak Hour	
			LOS (Delay)	95th % Queue	LOS (Delay)	95th % Queue
NY 104 & Basket Rd	Eastbound	Left	E (62.1)	140 ft	E (62.0)	150 ft
		Thru / Right	B (10.6)	215 ft	C (21.0)	662 ft
	Westbound	Left	E (73.9)	15 ft	E (56.4)	24 ft
		Thru / Right	B (16.8)	221 ft	B (19.0)	238 ft
	Northbound	Left / Thru / Right	D (38.5)	42 ft	D (38.7)	42 ft
	Southbound	Left / Thru / Right	D (39.0)	11 ft	D (45.8)	108 ft
	Overall Intersection		**B (18.7)**		**C (24.1)**	
NY 104 & County Line Rd	Eastbound	Left / U-turn	E (55.2)	40 ft	D (49.7)	80 ft
		Thru / Right	B (11.1)	145 ft	B (19.8)	478 ft
	Westbound	Left / U-turn	C (33.9)	27 ft	E (57.2)	50 ft
		Thru / Right	C (30.5)	610 ft	B (17.0)	250 ft
	Northbound	Left / Thru / Right	D (42.3)	21 ft	D (44.2)	50 ft
	Southbound	Left / Thru / Right	D (45.0)	80 ft	D (46.8)	49 ft
	Overall Intersection		**C (25.4)**		**C (21.8)**	
NY 104 & Dean Pkwy	Eastbound	Left / U-turn	E (58.0)	246 ft	D (41.2)	75 ft
		Thru	B (11.3)	207 ft	C (21.3)	568 ft
	Westbound	U-turn	F (81.4)	11 ft	E (57.0)	29 ft
		Thru / Right	D (40.2)	665 ft	B (10.9)	253 ft
	Southbound	Left	D (48.4)	46 ft	E (56.1)	120 ft
		Right	D (44.5)	46 ft	D (46.2)	120 ft
	Overall Intersection		**C (34.6)**		**C (22.0)**	
NY 104 & Lincoln Rd	Eastbound	U-turn	D (50.8)	19 ft	D (52.1)	20 ft
		Thru / Right	A (4.4)	117 ft	B (12.1)	392 ft
	Westbound	Left / U-turn	E (56.5)	38 ft	D (54.9)	74 ft
		Thru	A (9.0)	168 ft	A (7.0)	97 ft
	Northbound	Left / Right	E (62.6)	115 ft	D (52.7)	87 ft
	Overall Intersection		**B (11.2)**		**B (13.7)**	
NY 104 & Lakeside Rd	Eastbound	Left / U-turn	E (67.7)	57 ft	D (53.7)	65 ft
		Thru / Right	B (15.0)	194 ft	B (14.5)	324 ft
	Westbound	Left / U-turn	E (59.5)	35 ft	E (60.4)	14 ft
		Thru / Right	B (11.9)	379 ft	B (10.3)	183 ft
	Northbound	Left / Thru / Right	D (52.7)	20 ft	D (53.2)	50 ft
	Southbound	Left / Thru / Right	E (60.4)	45 ft	E (65.4)	127 ft
	Overall Intersection		**B (16.5)**		**B (17.4)**	
Dean Pkwy & Timothy Ln	Eastbound	Left / Thru / Right	A (0)	N/A	B (10.5)	N/A
	Westbound	Left / Thru / Right	B (11.3)		B (11.4)	
	Northbound	Left / Thru / Right	A (0)		A (1.2)	
	Southbound	Left / Thru / Right	A (0)		A (0.3)	
	Overall Intersection		**A (1.3)**		**A (4.3)**	

Overall intersection traffic operation was determined to be Level of Service "C" or better at each intersection during both morning and afternoon peak hours, which is considered acceptable traffic operation. Many left turn, U-turn and side street movements were found to operate with longer delays and Level of Service "D" and "E". This is a result of the Route 104 intersections being programmed /

timed to prioritize efficiency of the Route 104 thru movements. Also, most left turns and U-turns operate as protected-only movements (traffic must wait for a green arrow) for safety reasons due to the high speed and divided highway character of the Route 104 corridor, which increases delay.

Crash History

Crash data for the Beh Industrial Park study project area was obtained from the Accident Location Information System (ALIS) via the NYSDOT. The data spans a six-year period from January 1, 2014 to December 31, 2019, and 354 crashes were documented. A summary of crash types and severity for the overall project area is provided below in Table 3. A "Hot Spot" map depicting the number of crashes at various locations within the project area is provided in Figure 4. Collision diagrams for the Route 104 and County Line Road and Route 104 and Dean Parkway intersections are provided in Figure 5 and Figure 6, respectively.

Table 3: Summary of Crash History and Severity

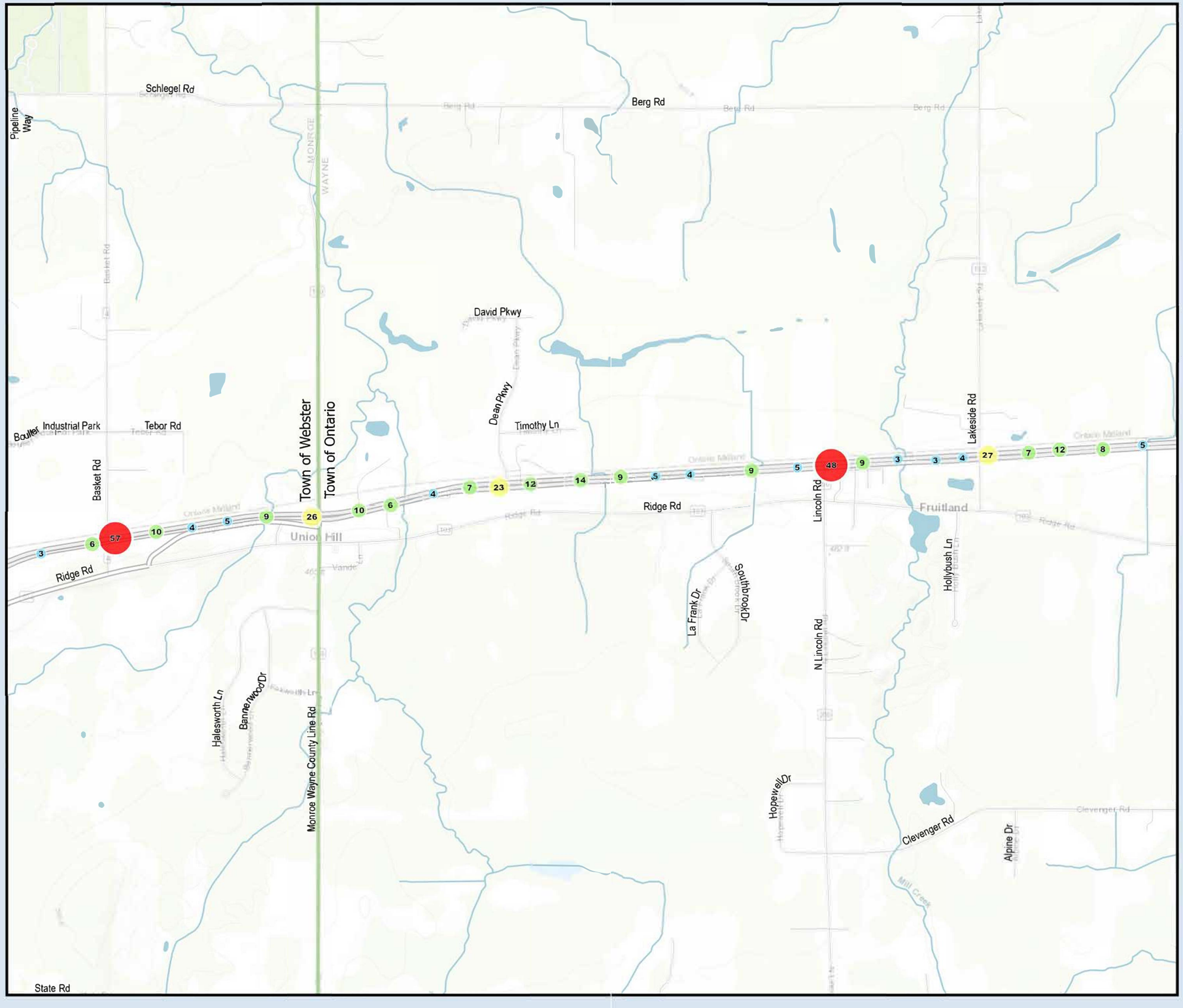
Six-Year Period (1/1/2014 to 12/31/2019)		
Type of Crash	**Number**	**Percentage**
Rear End	126	36%
Animal	75	21%
Other / Unknown	35	10%
Fixed Object	30	9%
Right Angle	26	7%
Overtaking	26	7%
Ditch / Embankment	15	4%
Left Turn	7	2%
Head On	5	1%
Right Turn (Against Other Car)	4	1%
Ran Off Road	2	1%
Sideswipe	1	0.3%
Overturned	1	0.3%
Pedestrian	1	0.3%
Total	**354**	**100%**
Severity	**Number**	**Percentage**
Non-Reportable	131	37%
Property Damage	156	44%
Injury	66	19%
Fatality	1	0.3%
Total	**354**	**100%**

One crash involving a fatality occurred at the NYS Route 104 and Basket Road intersection, as a result of a head-on collision.

One crash involving a pedestrian occurred on NYS Route 104 near Lincoln Road, which resulted in injury. The crash was attributed to the pedestrian crossing at a location with no signal or crosswalk.

C. Existing Pedestrian and Bicycle Facilities

There are no dedicated pedestrian or bicycle facilities within the study area. Pedestrians and bicyclists are permitted to use road shoulders where present. Signalized intersections along NYS Route 104 do not include crosswalks or pedestrian signal equipment.



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Legend

- Stream
- Town Boundary
- Waterbody

*Number of Accidents

- 1 - 5
- 6 - 20
- 21 - 30
- 31 - 40
- Greater than 40

*Note: Incident clusters are based off of a 250-foot buffer. There are a total of 354 accidents.

Crash Data Period: Jan 1. 2015 – Dec 31. 2019

N

0 0.25 0.5 Miles

FIGURE 4
Crash "Hot Spot" Map

State Route 104
Towns of Webster and Ontario
Monroe County, New York

Source: NYS GIS Program Office, 2019
Service Layer Credits: World Topographic Map: Province of Ontario, Ontario MNR, Esri

Path: P:\Proposals\F-J\Genesee Transportation Council\P2003503 - Beh Industrial

SYMBOLS

- Personal Injury
- Non-Reportable
- Property Damage
- Fatality
- Fixed Object
- A — Animal
- B — Bicycle
- M — Motorcycle
- Vehicle
- Pedestrian

MANNER OF COLLISION

- Rear-End
- Side-Swipe
- Out of Control
- Skidding
- Left-Turn
- Right Angle
- Right Turn
- Head-On
- Overtaking
- Overturned
- Stopped Vehicle
- Unknown/ Not Entered

N W E S

0 25 50

FEET

FIGURE 5

Collision Diagram

NYS Route 104 & County Line Road Intersection

NEW YORK STATE OF OPPORTUNITY.

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Department of Transportation

SYMBOLS

- Personal Injury
- Non-Reportable
- Property Damage
- Fatality
- Fixed Object
- A — Animal
- B — Bicycle
- M — Motorcycle
- Vehicle
- Pedestrian

MANNER OF COLLISION

- Rear-End
- Side-Swipe
- Out of Control
- Skidding
- Left-Turn
- Right Angle
- Right Turn
- Head-On
- Overtaking
- Overturned
- Stopped Vehicle
- Unknown/ Not Entered

N W E S

0 25 50

FEET

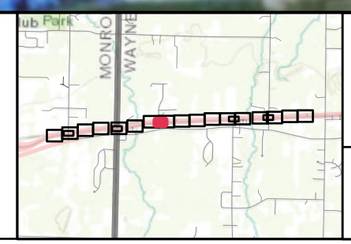


FIGURE 6

Collision Diagram
NYS Route 104 &
Dean Parkway Intersection

NEW YORK STATE OF OPPORTUNITY.

LaBella Powered by partnership.

Department of Transportation

The Beh Industrial Park roadways (Dean Parkway, David Parkway and Timothy Lane) do not have paved shoulders or sidewalks for pedestrian use. There are no pedestrian connections between individual properties within the site or connections between the site and businesses along NYS Route 104.

D. On-Street and Off-Street Parking Facilities

There are no dedicated on-street parking areas within the study area. Parking is assumed to be permitted along roadway shoulders where present.

Privately-owned off-street parking facilities are provided for individual properties and businesses within the Beh Industrial Park and along the NYS Route 104 corridor. Based on site observations, the private parking facilities appear to adequately accommodate the demands of the individual properties.

There are no public / municipal parking facilities located within the study area.

E. Public Transit Facilities

There are no public transit facilities or routes within the study area. Regional Transit Service (RTS) does operate within Wayne County, and Route 307b & 308 utilizes Ridge Road through the Town of Ontario, with stops at Union Hill and Ontario Center.

F. Site Infrastructure

Field observations were performed to investigate the presence and condition of site infrastructure including pavement, signage, lighting, traffic signals and drainage. The observations were focused along the Beh Industrial Park internal roadways.

Pavement
Dean Parkway is a two-lane, paved roadway approximately 30 feet wide. David Parkway is a two-lane, paved roadway approximately 30 feet wide. Timothy Lane is a two-lane, paved roadway approximately 22 feet wide. These roads are owned and maintained by the Town of Ontario.

Most pavement within the Beh Industrial Park was observed to be in fair to poor condition. Longitudinal & transverse cracking and utility patches are present throughout. There are no paved shoulders, and pavement edges are not well defined. Rutting and off-tracking is present along roadways throughout the site, particularly near driveways, which may indicate that the road geometry does not adequately accommodate the design vehicle.

Dean Pkwy typical pavement condition

Timothy Lane, newer pavement section

The northernmost +/- 1,000 feet of Dean Parkway received a recent asphalt overlay and is in better condition than the southern portion of Dean Parkway. The eastern end of Timothy Lane was recently constructed, and the pavement is in good condition.

The Town of Ontario plans to mill and overlay the asphalt pavement on Dean Parkway once heavy construction is completed on development sites such as Intergrow.

Signage and Pavement Markings
Signage within the Beh Industrial Park includes regulatory signs ("Stop" and speed limit), warning signs ("No Outlet" and curve signage) and street signs. Intersection control and warning signs were observed to be generally in good condition. Street signs are in fair to good condition but do not appear to meet current standards with regard to letter height.

Dean Pkwy typical signage condition

Dean Pkwy & NYS Route 104 intersection signage

Signage is also present at the Dean Parkway intersection with NYS Route 104. This signage is maintained by NYSDOT and appears to be in good condition and meeting current standards.

Pavement markings include a double yellow center stripe along Dean Parkway. David Parkway and Timothy Lane do not include any pavement markings. None of the roadways include white edge line stripes to delineate the edge of the travel lane / roadway.

Lighting
Most lighting within the Beh Industrial Park is associated with private developments within the site. There are no lighting systems along site roadways. Lighting is present at the Dean Parkway & NYS Route 104 intersection, which consists of a cobra-style light fixture.

Traffic Signals
Traffic signals are present along NYS Route 104 at the intersections with Basket Road, County Line Road, Dean Parkway, Lincoln Road, and Lakeside Road. The signals are owned and operated by NYSDOT. They are all span wire mounted signals and were observed to be in fair condition. The signals lack reflective back plates or other high visibility treatments, and also lack pedestrian equipment including pushbuttons, signal heads and countdown timers.

Typical traffic signal installation along NYS Route 104

Drainage

A cursory evaluation of roadside drainage facilities was performed. Most drainage within the Beh Industrial Park sheet flows away from the roadways into roadside swales. Sections of closed drainage systems are present. Most drainage infrastructure including driveway culverts, headwalls and inlets were observed to be in fair to poor condition. The system of swales appears to drain reasonably well, but ponding was observed in some areas such as the intersection of Dean Parkway and David Parkway.

Typical roadside swale along Dean Parkway

Typical closed drainage along David Parkway

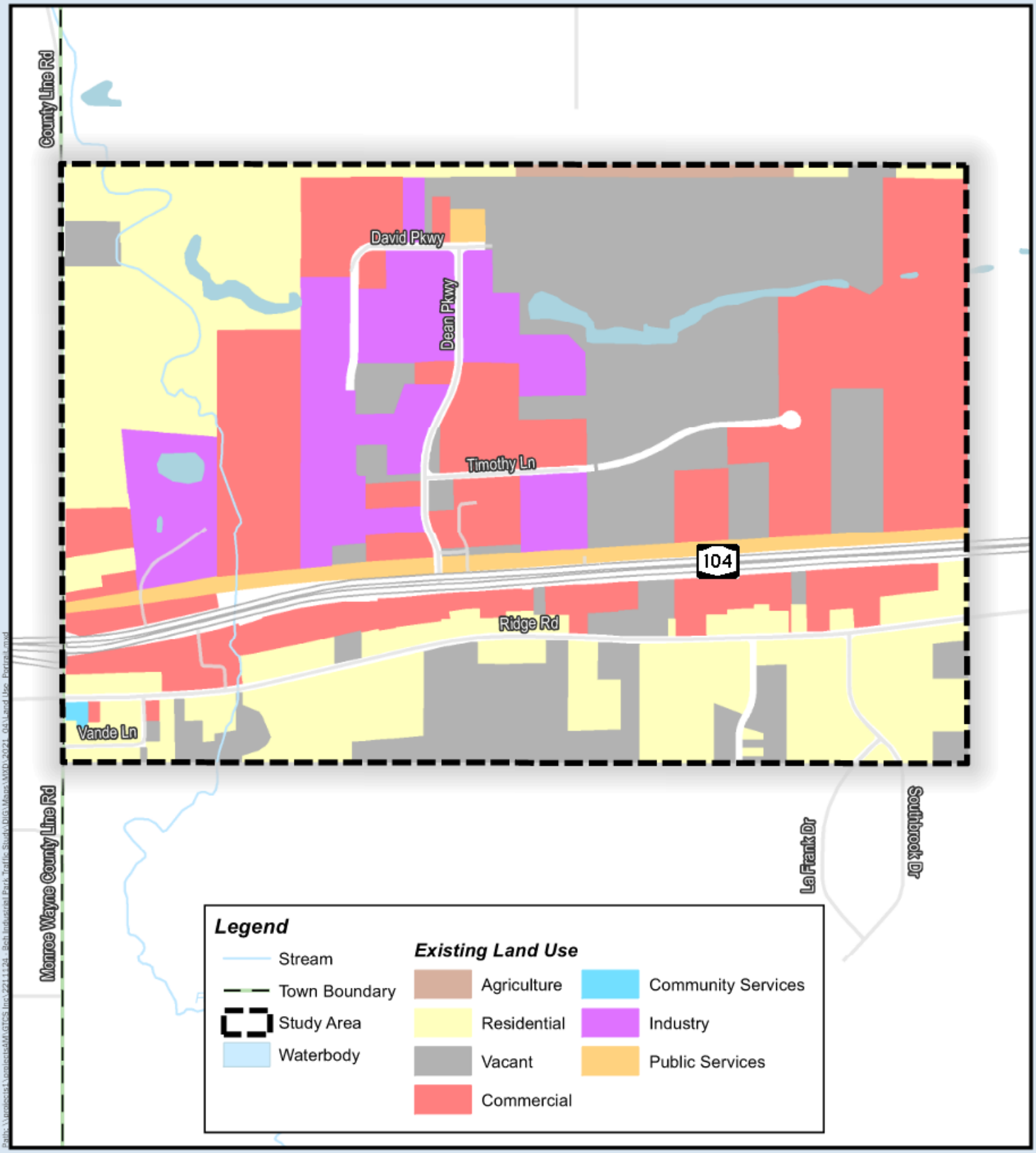
G. Land Use & Zoning

The Beh Industrial Park is currently zoned Industrial and is additionally designated as Industrial on the Town of Ontario Future Land Use Map. Directly adjacent to the north of the site is an R-2 Residential district which is envisioned to remain Rural Residential / Agricultural per the Future Land Use Map.

Current Land Use and Zoning

There are currently nine distinct zoning districts within the Town of Ontario. These districts range in intensity from low density residential to heavy industrial use. Additionally Incentive Zoning and Planned Unit Development (PUD) are permitted within the Town of Ontario.

Existing land use within the project area is depicted on Figure 7.



N

0 500 1,000 Feet

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LaBella Project No: 2211124
Date: APRIL 2021

Town of Ontario
Wayne County, NY

FIGURE 7

Land Use

Source: ESRI 2018; LaBella 2021; NYS Office of Information Technology Services GIS Program Office(GPO) 2020; USGS 2020; Wayne County 2020.

The following defines the goals for each respective zoning district in the Town of Ontario:

Rural (R-1) District includes rural residential land uses to maintain the open rural character of the community, foster normal agricultural operations, and protection of viable agricultural soils;

Rural (R-2) District allows for the development of residential land uses while maintaining the open rural character of the community;

Suburban Residential (SR) District designates the areas of the Town for single-family residential use, at low density;

Urban Residential (UR) District includes residential buildings with mixed density;

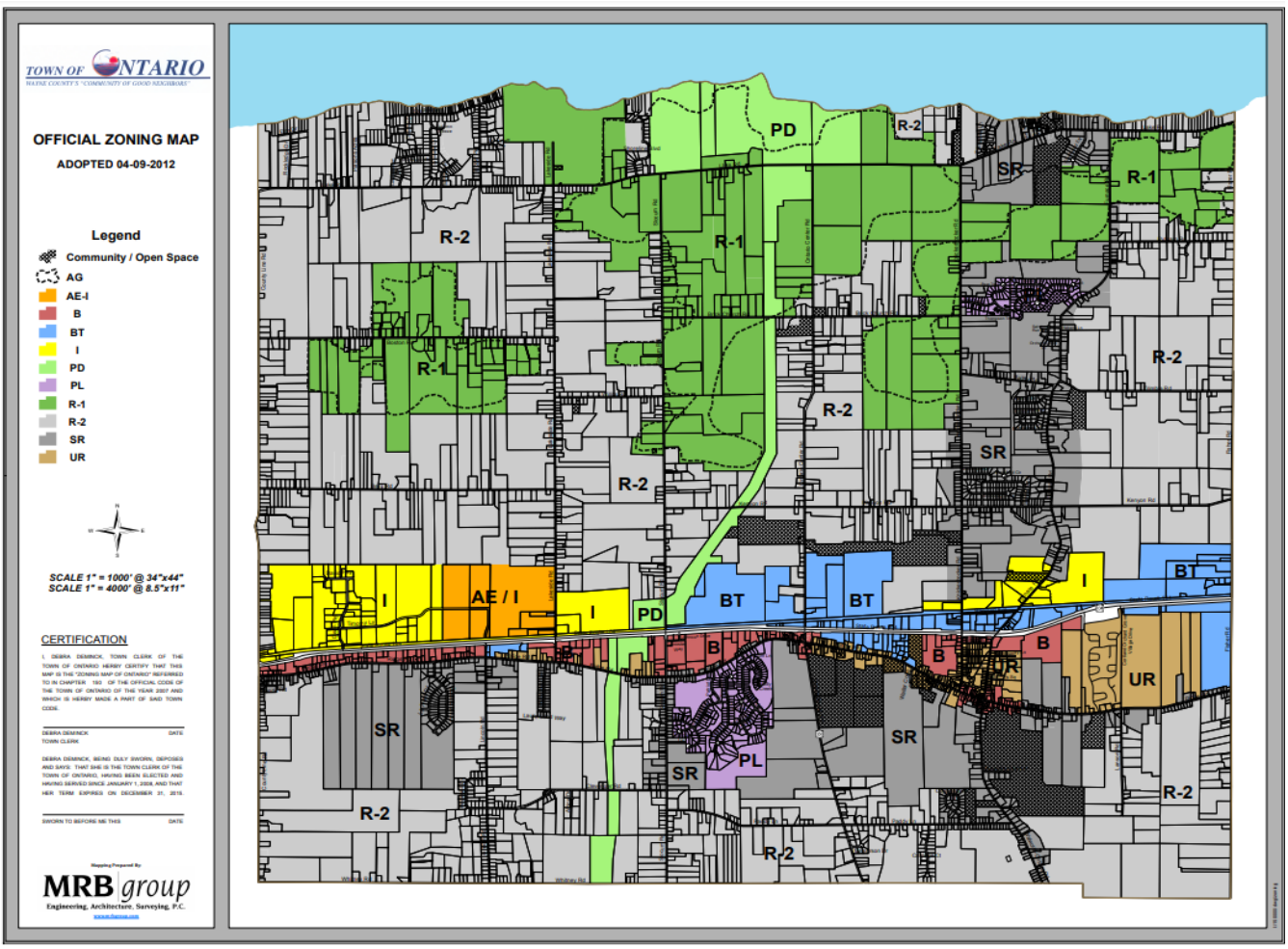
Business (B) District include areas of the Town for general retail, service and office activities to provide goods and services, and residential;

Business Transitional (BT) District includes areas of the Town for commercial service, storage and light-industrial processing activities, residential and other uses;

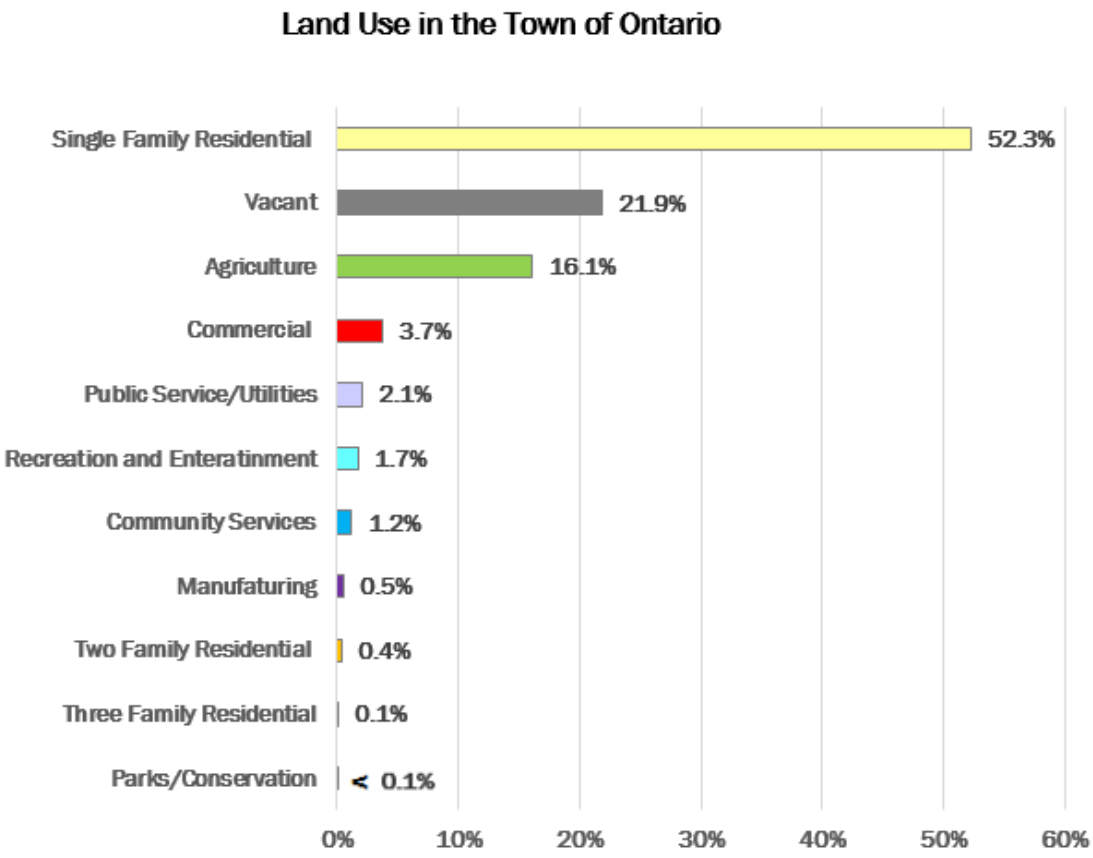
Industrial (I) District designate areas of the Town for public utilities, light industrial, and heavy industrial;

Public Utility (PU) District designate areas of the Town reserved for use by a public utility plant and associated facilities;

Adult Entertainment/Industrial (AE/I) District includes areas of the Town for public utilities, light industrial, heavy industrial, as well as adult entertainment uses.



There are 20,219.9 acres of land within the Town of Ontario, with the largest percentage dedicated to Single Family residential use (52.3%), followed by Agriculture (16.1%). Approximately 21.9% of the Town land is classified as vacant land. There are several clusters of commercial uses along Route 104 and Ridge Rd.



Source: Real Property data provided by Wayne County Planning Department.

Future Land Use Summary
The following is a summary of zoning districts present in the Town of Ontario's Future Land Use Map:

Rural Residential/ Agricultural
This land use category comprises the majority of lands within the Town of Ontario. Land within these areas is characterized by farmland, single family dwellings on large lots, and residential development along existing roads.

Suburban Residential
Areas with medium density residential development are designated as Suburban Residential by the Town of Ontario. These areas include existing residential subdivisions as well as adjoining areas which could be served by both public water and public sewer service.

High Density Residential
The High Density Residential category includes all existing apartment complexes, manufactured home parks, townhouses and other high-density housing types. This land use category is directed only to areas with existing public sewer and close access to major roadways.

Downtown Business
The Downtown Business land use category includes the Hamlet of Ontario's commercial district as well as the along Ridge Road west of the Walworth-Furnace Road intersection. This district is made up primarily by commercial structures, with some residential apartments located on the upper floors. The intent of this district is to foster traditional neighborhood business and not big box retail found along Route 104.

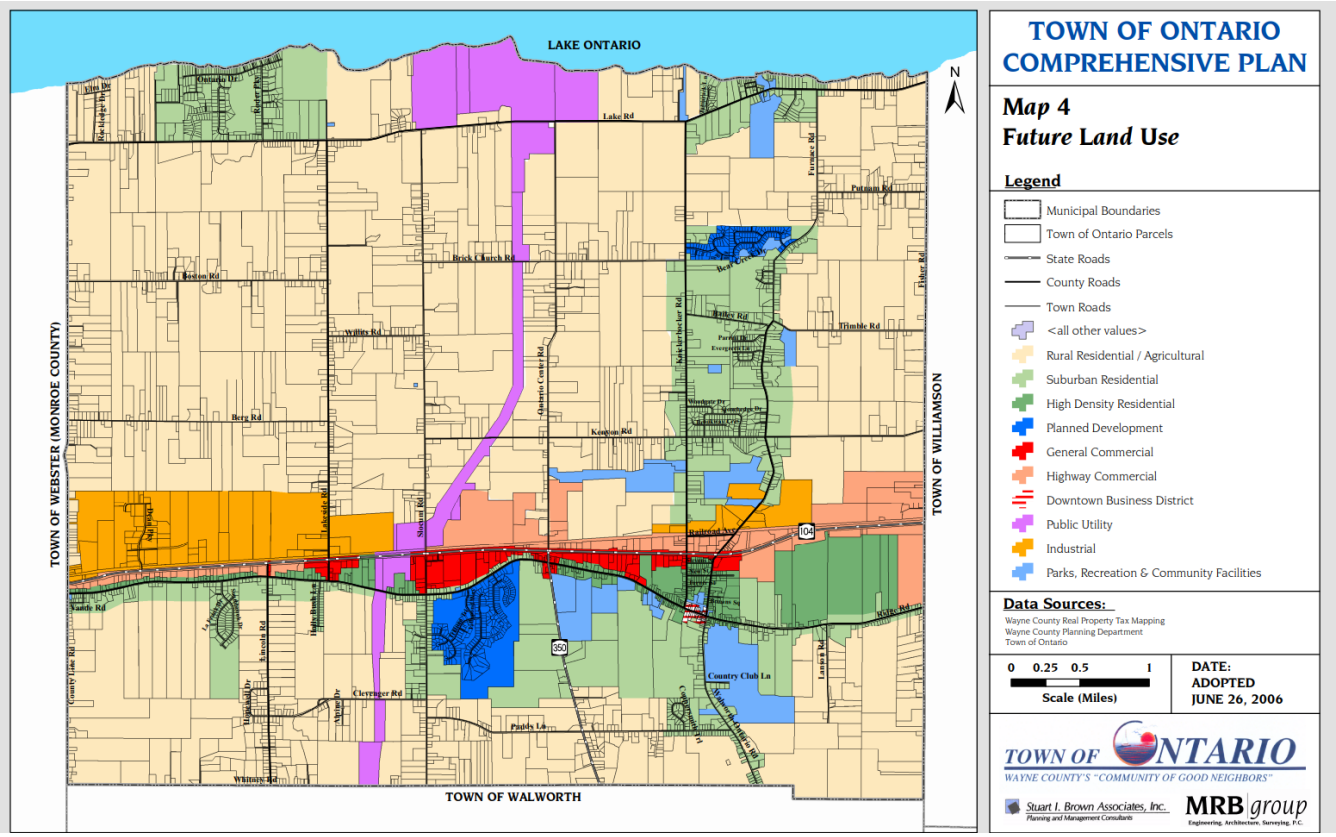
General Commercial
The General Commercial category includes the existing business district situated along the south side of Route 104 as well as several parcels on Ridge Road. This land use category is intended to include neighborhood-oriented retail and service businesses, with the exception of automobile-related businesses and storage uses.

Highway Commercial
The Highway Commercial category includes the land along the south side of Route 104 in the western side of the Town; along the north side of Route 104 in the center of Town, and along both sides of Route 104 in the eastern side of the Town. This land use designation is intended to accommodate retail and service businesses, including automobile-related businesses and storage uses.

Industrial
The Industrial category includes the lands located north of Route 104 in the both the western and eastern portions of town. This land use category is intended for manufacturing and storage uses.

Parks, Recreation and Community Facilities
Areas designated for Parks, Recreation and Community Services include parkland, government facilities schools, private recreational facilities, and other land owned by the Town.

Conservation Overlays
Conservation overlays provide extra guidelines to the underlying land use categories in order to natural resources. The conservation overlays are directed to areas which include stream corridors, wooded lots, flood hazard area, and lands with steep slopes.



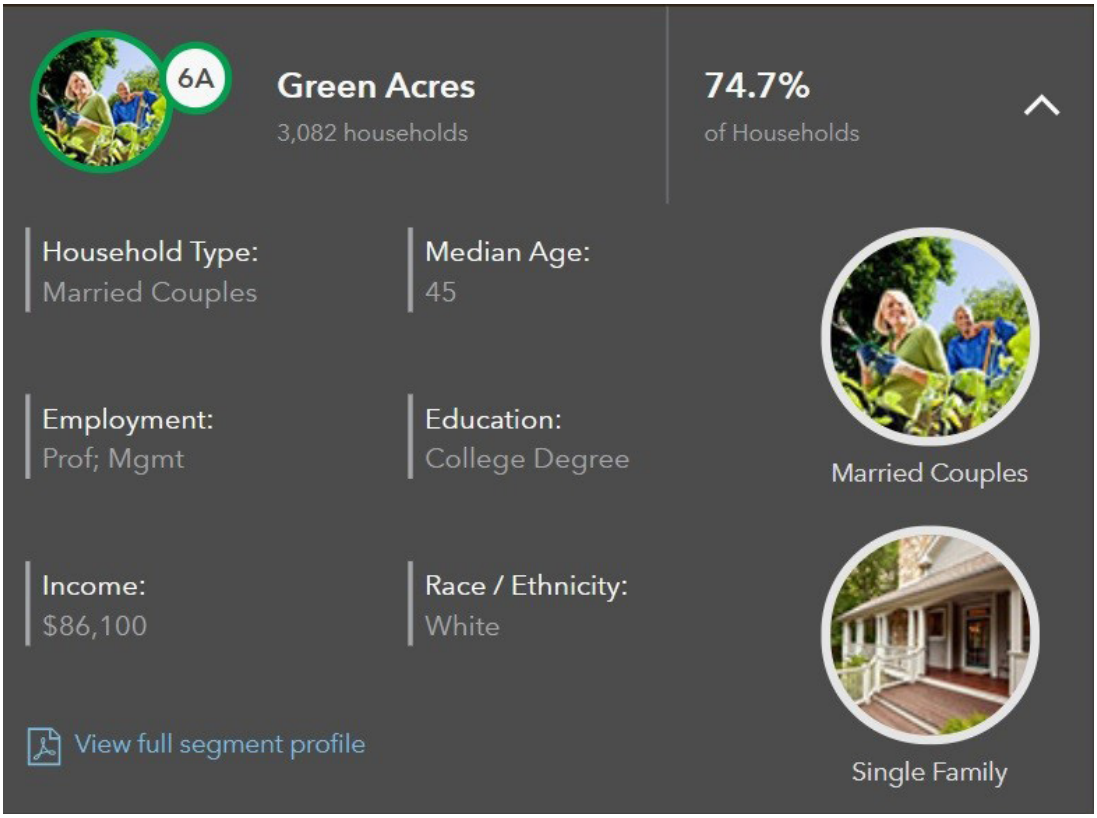
Market Trends

A look at the existing market trends helps to predict potential new development that is likely to occur within the area. This new demand would impact the existing transportation system by altering trip generation patterns, land use and density, as well as alter the design of streets and sites throughout the community. A brief overview of the implications from this analysis is provided below.

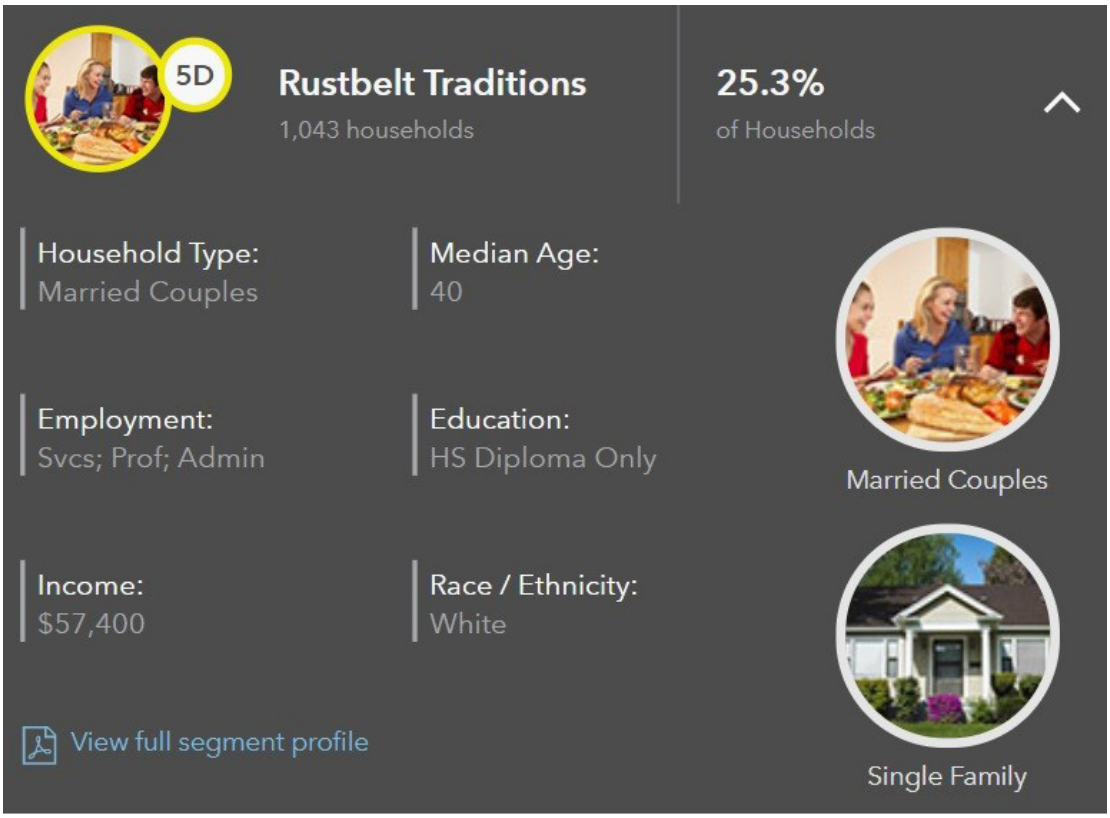
Market Segments

To understand the preferences of market segments within the Town of Ontario the ESRI Tapestry Segmentation System tool was utilized. This tool segments households by their tastes / preferences and then identifies potential retail and commercial development which may be expected by meeting this demand.

Within the Town of Ontario there are two distinct market segments: Green Acres, which represent approximately 75% of the population, and Rustbelt Traditions which represent the remaining residents.



The Green Acres segment is known for their preferences for country living and self-reliance. This group prefers DIY home improvement projects and gardening rather than contracting out the services. In their free time they like to partake in hunting and fishing, motorcycling, hiking and camping, and golfing. This segment also places of focus on physical fitness and are found to own home exercise equipment or play a variety of sports. The Green Acres segment are also very active in their communities and are members of a variety of social organizations. They are cautious consumers with a focus on quality and durability of goods.



The Rustbelt Traditions segment is made up of a mix of married-couple families and singles who live in older single family developments. This segment is primarily white collar workers, with a high concentration of skilled workers employed in manufacturing, health care, and retail. This group is family oriented and spent a large portion of their time at home. As a result this segment lives works and shops locally. The Rustbelt Tradition segment are budget conscious and have preference for American made goods. For relaxation they tend to watch television, with many households owning more than four TV sets.

Retail Opportunity

The market analysis identified potential retail development which could meet the needs of the local population. Currently, the consumer demand for various retail goods and food services in the Town of Ontario was approximately $158 million. The retail sales (supply, as of 2017, were $122.1 million. This shows that there is an existing gap (demand exceeded actual spending) of $36.1 million. It is important to note that the consumer demand only reflects the demand of residents within the Town and not the demand of regional residents nor of tourists.

Based on the retail market profile the following have the largest retail gaps within Ontario: Home Furnishings Stores; Specialty Food Stores; Clothing & Clothing Accessories Stores; Office Supplies, Stationery & Gift Stores; Vending Machine Operators; and Direct Selling Establishments. New retail businesses offering these merchandise types and services could potentially perform well within the Town. Many of these types of businesses are appropriate for dense, mixed use development which are found to be supported with improved streetscaping and pedestrian friendly amenities.

H. Regulatory Framework

This summary is intended to highlight the relevant regulatory provisions for streetscape development and is not intended to be an exhaustive catalogue of all regulations present within the Town of Ontario.

Chapter A154 Land Development Regulations and Public Works Requirements

A154-32 Street Layout

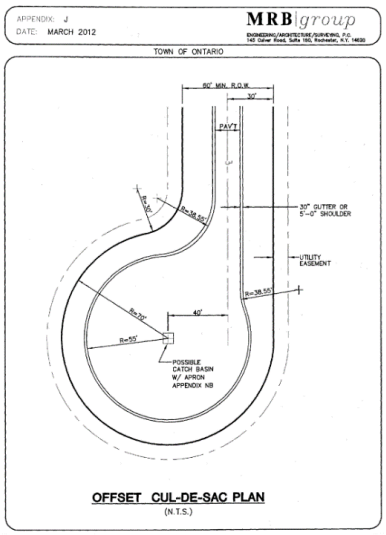
- Streets in a new development shall be designed to provide connectivity between existing or future neighborhoods/developments. This would include provisions for the extension and/or continuation of streets into and from adjoining properties or areas. The design shall consider techniques to prevent or discourage “cut-through” vehicular traffic and excessive speeds.
- If a portion of the tract is not subdivided, suitable access and street openings for such an eventuality shall be provided.
- Streets shall be logically related to the topography and acceptable planning/engineering criteria to produce usable lots and reasonable grades.
- New half or partial streets will not be permitted, except where essential for reasonable subdivision of a tract in conformance with the other requirements and standards contained herein and where, in addition, satisfactory assurance for dedication of the remaining part of the street can be secured.
- Dead-end streets shall be prohibited, except as stubs to permit future street extension into adjoining tracts or when designed as a cul-de-sac.
- Reserve strips which control access to right-of-way or utility easements are prohibited.

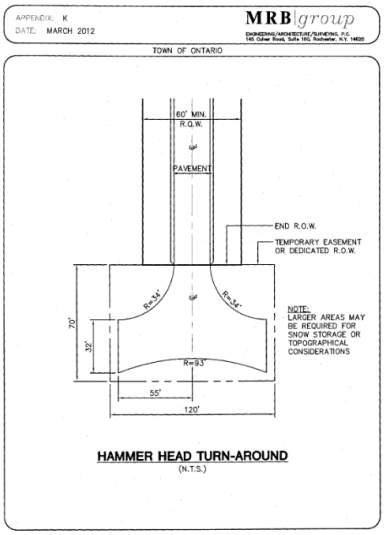
A154-33 Street Intersections

- Streets shall be laid out to intersect as nearly as possible at right angles. No street shall intersect another at an angle of less than 75˚.
- Multiple intersections involving a junction of more than two streets shall be avoided. Where this proves impossible, such intersections shall be designed with extreme care for both pedestrian and vehicular safety.
- Streets entering opposite sides of another street shall be laid out either directly opposite one another or with a minimum offset of 250 feet between their center lines

A154-34 Cul-de-sac Streets

- Cul-de-sac streets, permanently designed as such, should not exceed 1,200 feet in length and should be designated to be generally offset turnarounds per Appendix J
- Hammerhead sections may be proposed as per Appendix K to be used at the end of a cul-de-sac in lieu of the circle due to design considerations. If they are temporary, they shall be constructed to Town road specifications, except for the top course, which will not be required.





A154-104 Roads

- The following designations will be used by the Town to classify roads and their respective design criteria:
  - Commercial/industrial.
  - Residential/subdivision.
  - Private (one lot).
  - Private (two or more lots).

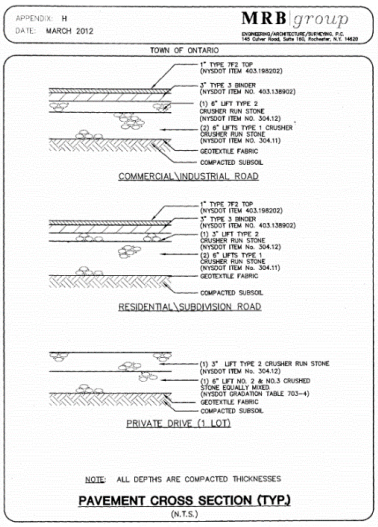
- The basic considerations of each road classification are as follows:
  - Commercial/industrial:
    - Provides access to established commercial and industrial areas.
    - Provides access to local roads.
    - High-volume car/truck/tractor trailer traffic.

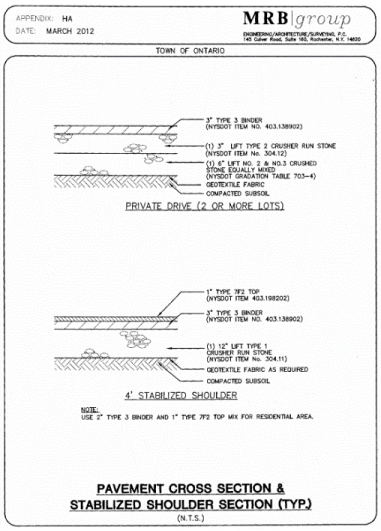
  - Residential/subdivision:
    - Densities as permitted by the Zoning Ordinance.
    - Design speeds of 30 miles per hour or less.
    - Individual driveways at regular intervals.
    - Usually no effect on overall Town traffic pattern.

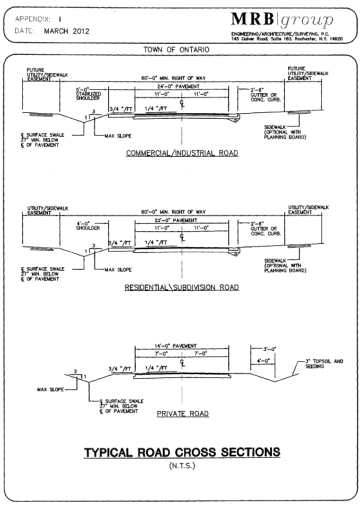
- Private (non-dedicated and one user):
  - Has fee ownership on a dedicated street.
  - Has no effect on overall Town traffic pattern.
  - Design speed of 30 miles per hour or less.
  - Maintenance by homeowner.
  - Meets New York State Fire Code.

- Private (non-dedicated and two or more users):
  - Has fee ownership on a dedicated street.
  - Low volume of traffic.
  - Has no effect on overall Town traffic pattern.
  - Design speed of 30 miles per hour or less.
  - Maintenance covered by deed agreement or homeowners' association, depending on number of units.
  - Meets New York State Fire Code.

- Each of these roads has basic characteristics which may be varied to be consistent with unique proposals of development and construction. The individual variations of the conditions will not be permitted if they sacrifice design safety or maintenance of a proposed road type. Standard roads shall comply with the typical cross sections shown on Appendixes H, HA and I.



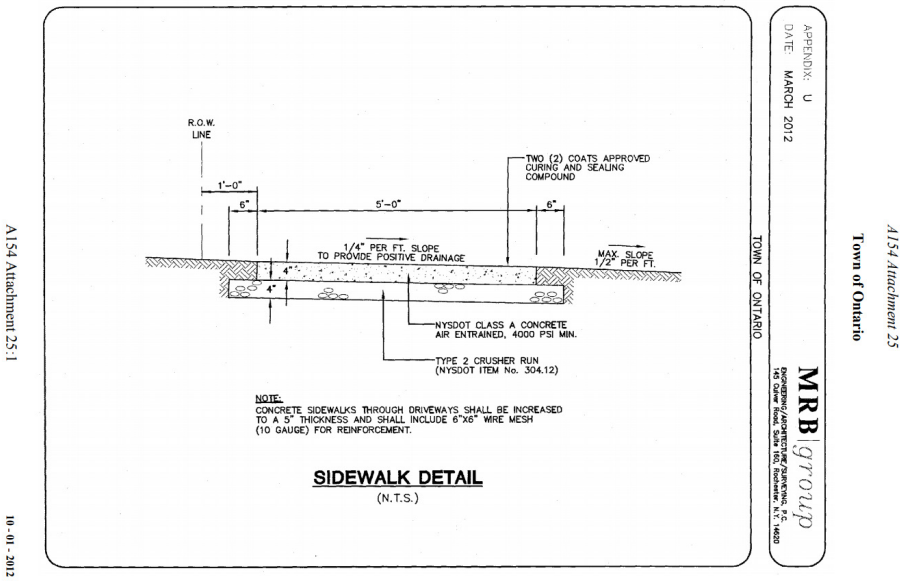




A154 Attachment 11:1 10 - 01 - 2012

A154-108 Sidewalks

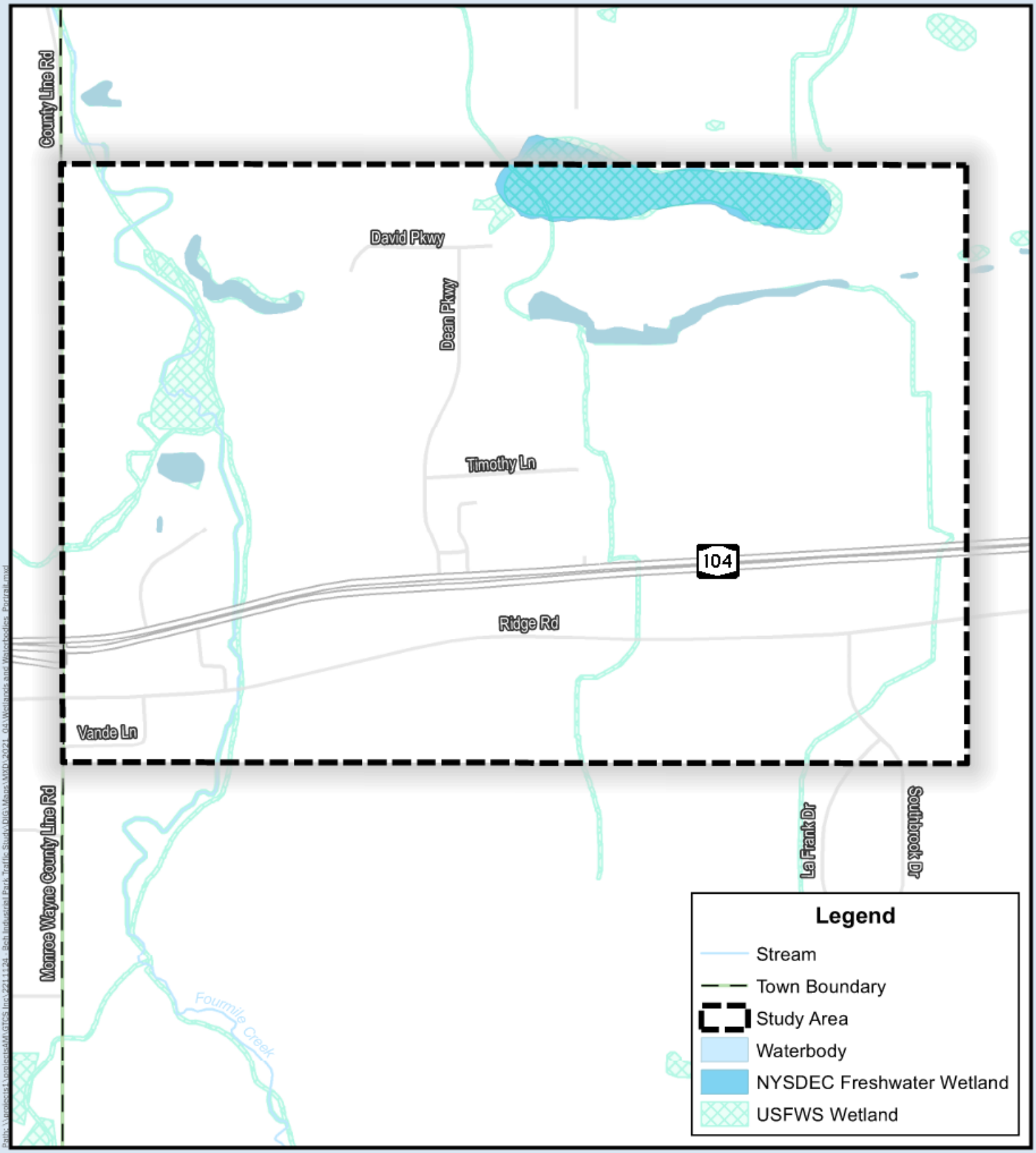
- Sidewalks shall be concrete



I. Environmental Considerations

The study area is bordered on the western portion by a 100-year flood zone and floodway created by Fourmile Creek. There is another leg of Fourmile Creek bordering the study area on the northern portion of the site. The creek meanders south and forms a waterbody situated on the eastern portion of the study area.

Wetlands and Waterbodies within the project area are depicted on Figure 8. FEMA Floodplains are depicted on Figure 9.



N

0 500 1,000 Feet

LaBella
Powered by partnership.

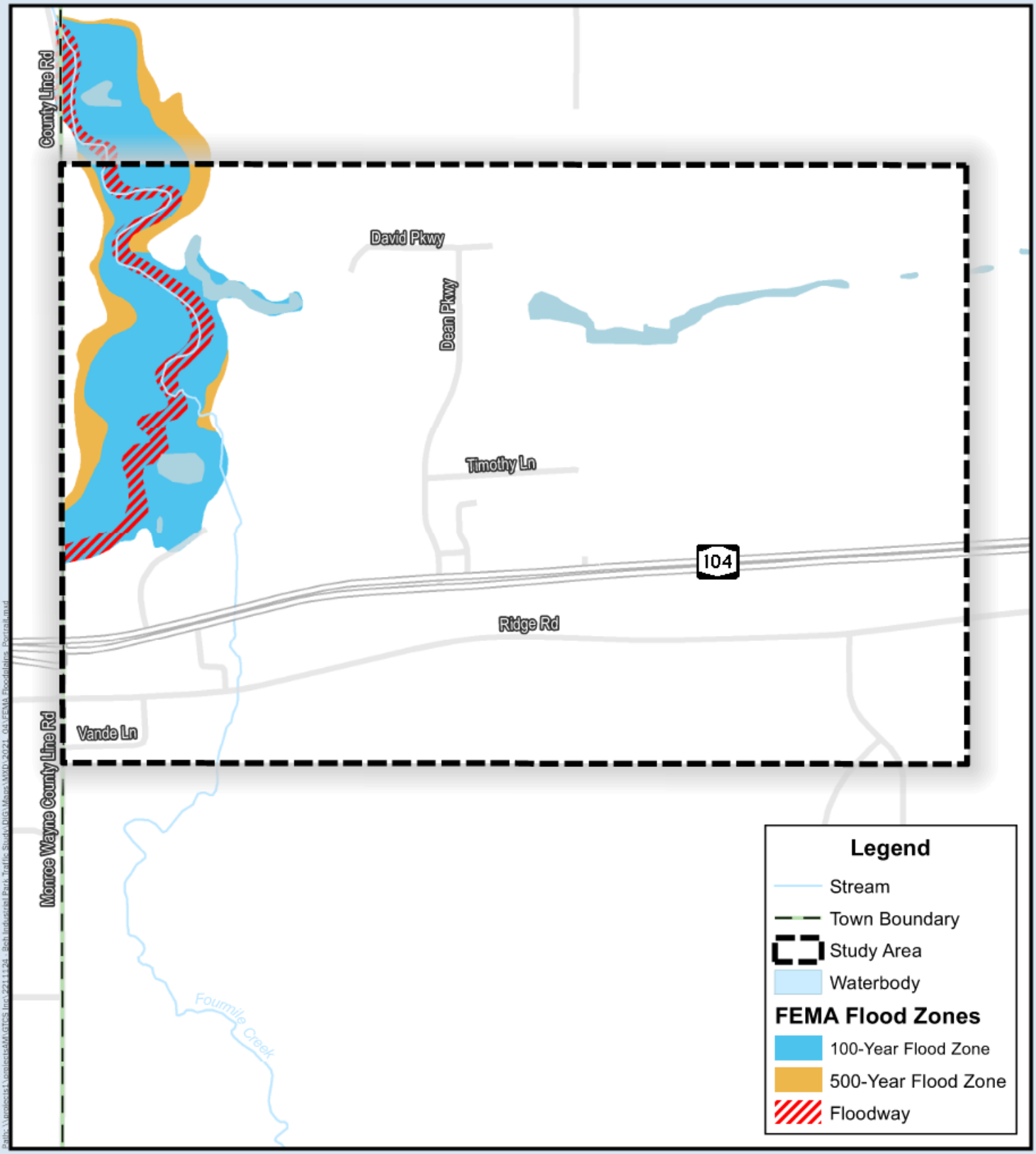
LaBella Project No: 2211124
Date: APRIL 2021

Town of Ontario
Wayne County, NY

FIGURE 8

Wetlands and Waterbodies

Source: ESRI 2018; LaBella 2021; NYSDEC 1999; NYS Office of Information Technology Services GIS Program Office (GPO) 2020; USFWS 2020; USGS 2020



N

0 500 1,000 Feet

LaBella
Powered by partnership.

LaBella Project No: 2211124
Date: APRIL 2021

Town of Ontario
Wayne County, NY

FIGURE 9

FEMA Floodplains

Source: ESRI 2018; FEMA Q3 Flood Data; LaBella 2021; NYS Office of Information Technology Services GIS Program Office (GPO) 2020; USGS 2020

III. COMMUNITY ENGAGEMENT

Actively engaging the public and key stakeholders is essential to successfully implementing any municipal plan or project. This plan was prepared with significant involvement from a committee of stakeholders, targeted groups of affected property owners, and Town of Ontario residents.

A. Steering Committee

A Steering Committee of Local, County and State agency representatives was assembled and met regularly throughout the process. In addition to the consultant team, Steering Committee members included the following:

- **Town of Ontario:** Frank Robusto, Town Supervisor; Adam Cummings, Town Engineer; William Riddell, Director of Economic Development
- **Wayne County:** Brian Pincelli, Director of Economic Development
- **New York State Department of Transportation:** Zachary Starke, Region 4 Permits; Andrew Quinn, Region 4 Traffic & Safety
- **Genesee Transportation Council:** Jody Binnix, Program Manager

Minutes from Steering Committee meetings are included in Appendix B.

B. Public Meetings

Several public outreach efforts were undertaken to inform the public about the project and solicit feedback from residents, property owners and users of the Beh Industrial Park.

On June 25, 2021, a meeting was held with the purpose of engaging property & business representatives within the Beh Industrial Park. The targeted businesses were some of the larger occupants of the Industrial Park as well as those with identified plans for expansion and development, including HARBEC, OptiPro, Optimax, and Intergrow. An introductory presentation was given, and the remainder of the meeting was open discussion between the participants and project team.

A public meeting occurred on September 23, 2021 and served to introduce the project, provide a summary of the Inventory and Needs Assessment phases of the project, and solicit feedback to be used in developing the study's recommendations. The meeting was advertised through traditional media, social media, and the Town of Ontario website, and was attended by approximately ten (10) members of the public in addition to the project team. An introductory presentation was given, and the remainder of the meeting was allocated for one-on-one discussion between the participants and project team. A survey was also distributed, of which two (2) responses were received.

A second public meeting to discuss the draft report and recommendations occurred on January 20, 2022. The meeting was advertised through traditional media, social media and the Town of Ontario website. A presentation was given, and one-on-one discussion between participants and the project team occurred during the remainder of the meeting.

Meeting minutes and community survey results are included in Appendix B.

C. Project Website

A project website was hosted on the Public Input platform for the duration of the project. The website is accessed at https://www.publicinput.com/BehTrafficStudy and contained general information about the project, technical memos and documents developed at project milestones, and information pertaining to both public meetings.

IV. NEEDS AND OPPORTUNITIES

An understanding of the specific physical, operational, design, and regulatory needs and opportunities within the Beh Industrial Park was obtained by reviewing existing data, site conditions and traffic operation. This understanding was enhanced by firsthand observations of existing circulation, traffic operation, and infrastructure, seeking input from local officials and business owners regarding future projects and growth within the Beh Industrial Park, and assessing opportunities to improve safety, mobility, and connectivity for all road users.

A. Local Market Trends for Future Growth and Development

Local land use and market trends were evaluated and are summarized in detail in Section 2: Existing and Planned Conditions. The market trend analysis identified unmet demand for retail within the Town of Ontario, including Home Furnishing Stores, Specialty Food Stores, Clothing Stores, Office Supplies, and others. Based on current zoning, these types of land uses are most likely to be located along the Route 104 corridor. Therefore, it can be expected that traffic volumes along Route 104 and adjacent roadways would increase over time as growth in retail development is experienced within the Town.

Considering the success of the existing Beh Industrial Park as well as local and regional efforts to bring new industrial developments to the Beh site and vicinity, growth of industrial development is expected to continue within the project area. Specific development projections are detailed in Section IV-B below.

B. Planned Growth and Expansion at the Beh Industrial Park

Coordination was undertaken with the Town of Ontario and businesses within the Beh Industrial Park to determine plans for future expansion.

Expansion plans and employment projections were provided by the following companies. New vehicular trip generation estimates based on this data are summarized in Table 4.

- Intergrow (663 Timothy Lane): Phase 2 (under construction) and Phase 3 (estimated construction in 2024), estimated 220 new employees
- Optimax (6367 Dean Pkwy): 75,000 sf future expansion, 300 new employees
- OptiPro (6368 Dean Pkwy): future expansion, 125 new employees
- Peak Fabrication (6314 Dean Pkwy): future expansion, 75 new employees
- Ranger Design Building (6377 Dean Pkwy): Potential future redevelopment, approx. 100,000 sf

Intergrow Phase 2 Expansion

Table 4: New Trip Generation

Business	Projected New Vehicular Trips												Source
	AM Peak Hour						PM Peak Hour						
	Passenger Vehicle		Truck		Total		Passenger Vehicle		Truck		Total		
	Enter	Exit	Enter	Exit	Enter	Exit	Enter	Exit	Enter	Exit	Enter	Exit	
Intergrow Phase 1	20	4	0	0	**20**	**4**	4	20	0	0	**4**	**20**	Note 1
Intergrow Phase 2	40	8	1	1	**41**	**9**	8	40	1	1	**9**	**41**	Note 1
Optimax	82	29	3	3	**85**	**32**	39	60	3	3	**42**	**63**	Note 2
OptiPro	49	17	0	0	**49**	**17**	25	40	0	0	**25**	**40**	Note 3
Peak Fabrication	39	14	0	0	**39**	**14**	22	34	0	0	**22**	**34**	Note 3
Ranger Design Building	48	14	0	0	**48**	**14**	21	46	0	0	**21**	**46**	Note 4
	Total AM Peak Hour				**282**	**90**	**Total PM Peak Hour**				**123**	**244**	

Notes:

1. Number of employees and trip generation provided by Intergrow.
2. Number of employees provided by Optimax; Trip Generation per ITE Trip Generation manual, 10th Edition, for Land Use 140: Manufacturing. Number of peak hour trucks estimated from daily & weekly numbers provided by Optimax.
3. Number of employees provided by OptiPro & Peak Fabrication; Trip Generation per ITE Trip Generation manual, 10th Edition, for Land Use 140: Manufacturing.
4. Trip Generation per ITE Trip Generation manual, 10th Edition, for Land Use 140: Manufacturing.

Trip generation estimates indicate that the proposed expansion projects would result in a total of 372 new vehicular trips (282 entering and 90 exiting) during the morning peak hour and 367 new vehicular trips (123 entering and 244 exiting) during the afternoon peak hour.

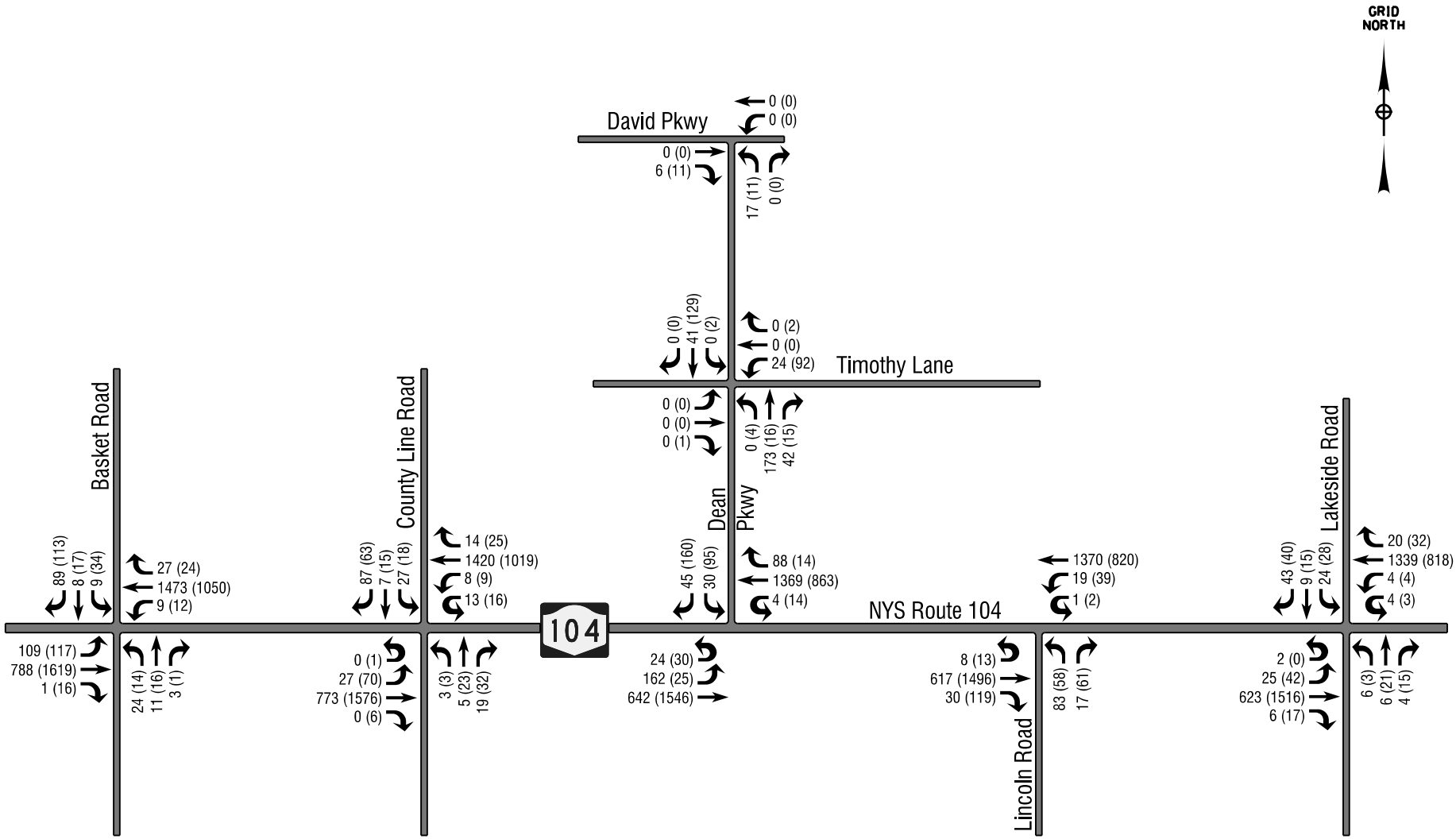
To account for unforeseen future growth within the Beh Industrial Park and overall study area, a growth rate of 1% per year was applied to all traffic volumes at intersections within the study area. A five-year study period was assumed, with a future analysis year of 2026. This results in a 5% increase in background traffic volumes at Year 2026.

C. Future Traffic Operation

A traffic analysis was performed to determine traffic operation during the morning and afternoon peak hours at the analysis year 2026. This represents a five-year buildout period where the expansion projects identified in Section IV-B: Planned Growth and Expansion at the Beh Industrial Park are expected to occur. The analysis was performed using Synchro traffic software, Version 11.

Two scenarios were analyzed at Year 2026: a Background scenario and a Full Development scenario. The Background scenario includes a general growth in traffic volumes of 1% per year but does not include any of the identified Beh Industrial Park expansion projects. All existing lane geometry and traffic signal timing is maintained. Background traffic volumes are depicted in Figure 10.

New vehicular trips generated from the future expansion projects at the Beh Industrial Park were distributed through the study area road network using existing travel patterns. Trip distribution percentages are depicted on Figure 11, and the new trips are depicted on Figure 12.



BACKGROUND (2026)
PEAK HOUR
TRAFFIC VOLUMES

XX (XX) = AM (PM) PEAK HOUR VOLUME

BACKGROUND TRAFFIC GROWTH: 1% PER YEAR

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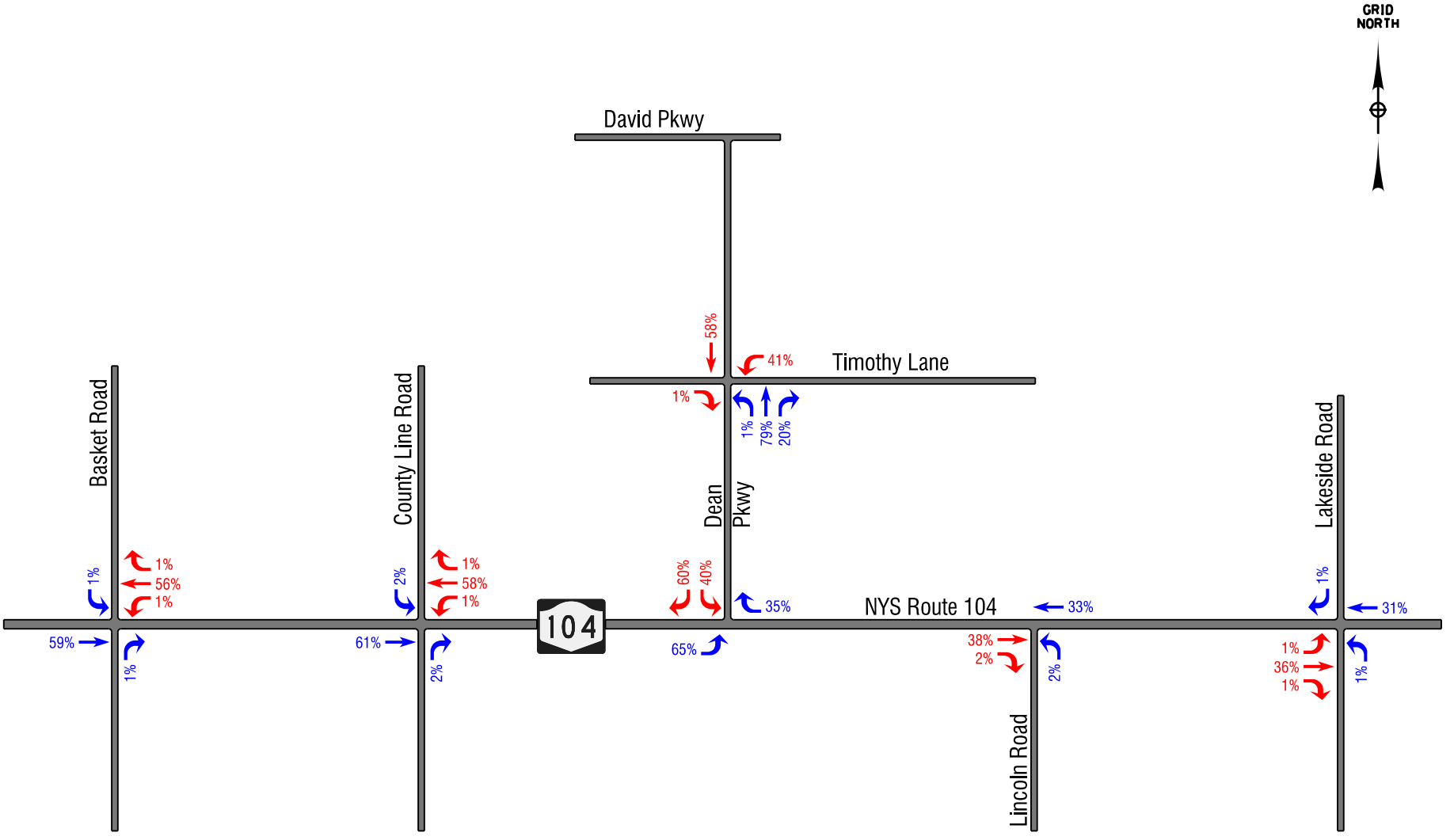
BACKGROUND PEAK HOUR TRAFFIC VOLUMES

DRAWING NO.: FIGURE 10 | SCALE: NTS

BEH INDUSTRIAL PARK
TRAFFIC OPTIMIZATION STUDY

TOWN OF ONTARIO, WAYNE COUNTY



TRIP DISTRIBUTION
NEW TRIPS TO & FROM BEH INDUSTRIAL PARK

XX = ENTERING TRIP PERCENTAGE
XX = EXITING TRIP PERCENTAGE

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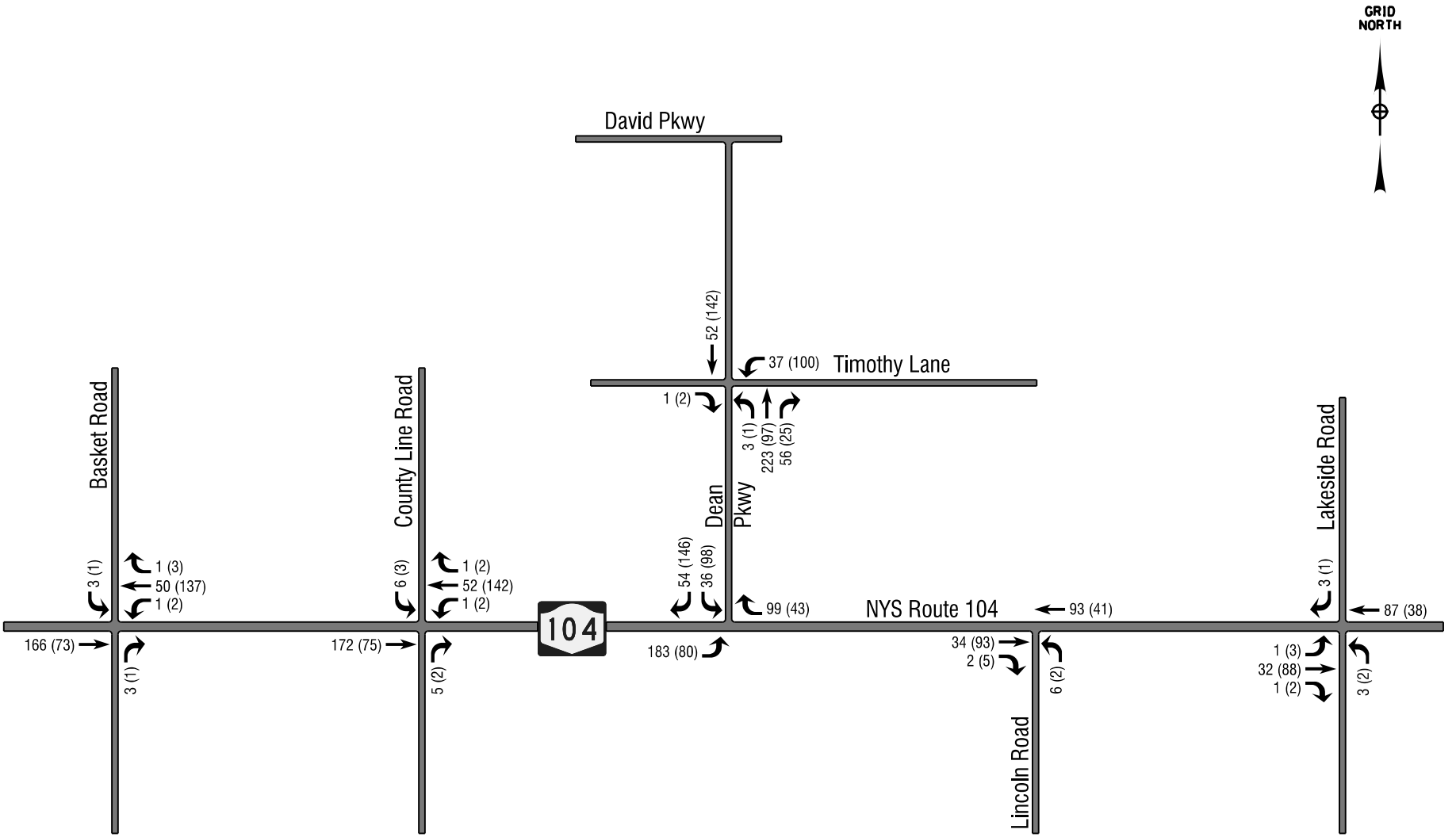
NEW TRIP DISTRIBUTION

DRAWING NO.: FIGURE 11 SCALE: NTS

BEH INDUSTRIAL PARK
TRAFFIC OPTIMIZATION STUDY

TOWN OF ONTARIO, WAYNE COUNTY



TRIP GENERATION
NEW TRIPS TO & FROM BEH INDUSTRIAL PARK

XX (XX) = AM PEAK HOUR (PM PEAK HOUR)

New Trip Generation			
	Enter	Exit	Total
AM Peak Hour	282	90	372
PM Peak Hour	123	244	367

Notes:
1. New trip generation is estimated for planned future expansion at Optimax, OptiPro, Intergrow and Ranger Design Building redevelopment. Additional future development within the Beh Industrial Park is accounted for in general background traffic volume growth (Figure 4).

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NEW TRIP GENERATION

DRAWING NO.: FIGURE 12 SCALE: NTS

BEH INDUSTRIAL PARK
TRAFFIC OPTIMIZATION STUDY

TOWN OF ONTARIO, WAYNE COUNTY

The Full Development scenario includes the background growth plus the new vehicular trips associated with the expansion projects. All existing lane geometry and traffic signal timing is maintained. Full development traffic volumes are depicted on Figure 13.

Table 5 summarizes the Existing, Background and Full Development traffic operation including Level of Service (LOS), average delay per vehicle, and 95th percentile queue length for each intersection within the study area.

Background Traffic Operation
The Background scenario traffic analysis indicates similar traffic operation to Existing conditions, with modest increases in delay for individual turning movements and overall intersections. All overall intersection LOS is projected to be "D" or better. All individual movements are projected to operate at LOS "E" or better, except the westbound U-turn movement at the Route 104 & Dean Parkway intersection, which is projected to operate at LOS "F" during the morning peak hour. This U-turn movement is low-volume and should not be a significant traffic concern, but may warrant periodic monitoring or modifications to traffic signal timing.

Full Development Traffic Operation
The Full Development scenario traffic analysis indicates similar traffic operation to Background conditions at the Route 104 intersections with Basket Road, County Line Road, Lincoln Road, and Lakeside Road, with modest increases in delay for individual turning movements and overall intersections. These intersections are all projected to operate with overall intersection LOS "D" or better and individual movement LOS "E" or better during both peak hours.

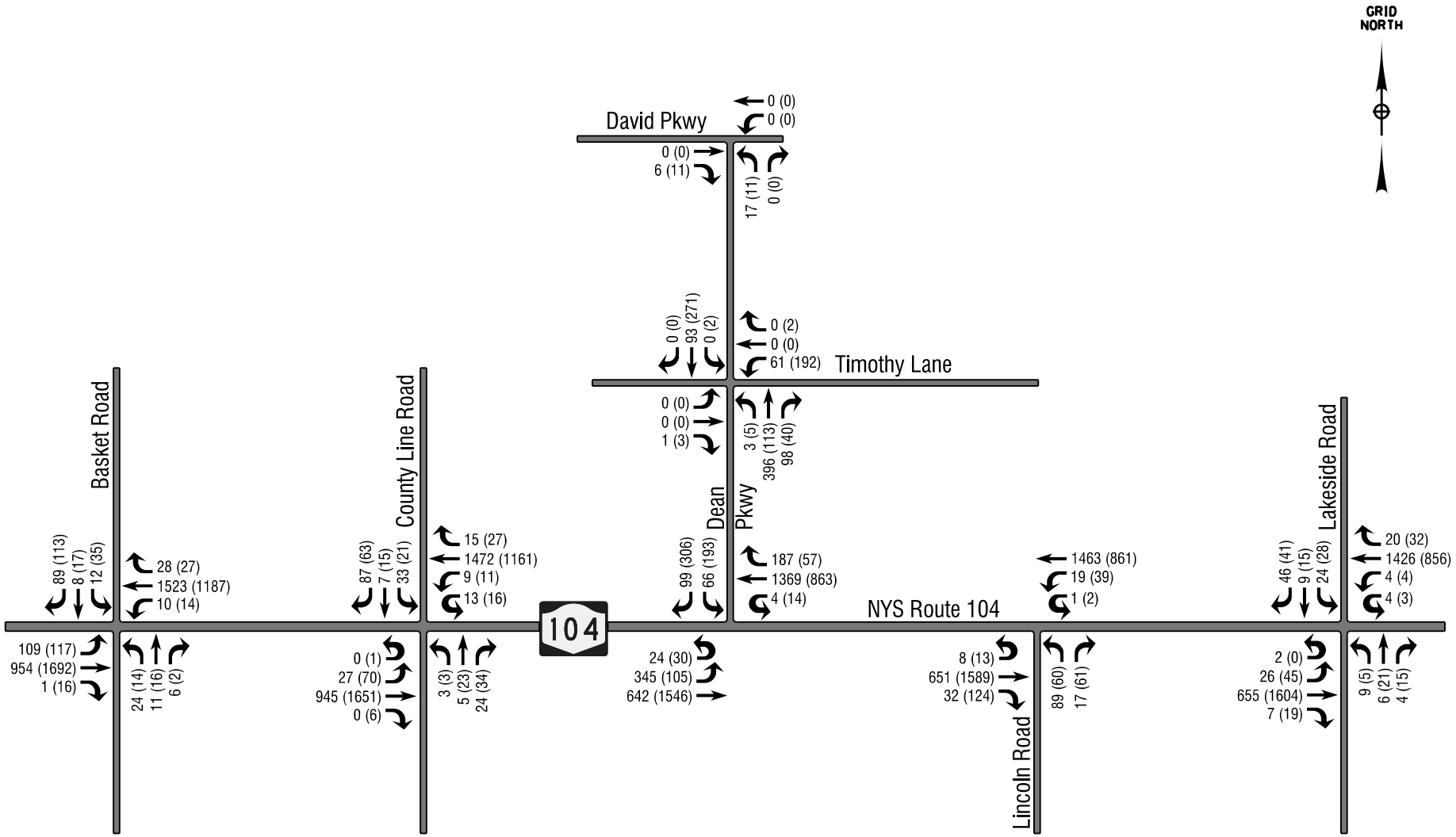
The Route 104 intersection with Dean Parkway is expected to experience the highest concentration of new trips associated with development at the Beh Industrial Park, and future LOS and delay is expected to degrade significantly during the morning and afternoon peak hours. During the morning peak hour, the eastbound left turn from Route 104 to Dean Parkway is expected to operate at LOS "F" with a 95th percentile queue of more than 600 feet, which extends into the Route 104 mainline and is a significant safety concern. During the afternoon peak hour, the eastbound left turn and southbound left and right turns are projected to operate at LOS "F", with Dean Parkway southbound queues extending back approximately 300 feet.

Potential lane and traffic signal improvements at the Route 104 and Dean Parkway intersection were modeled using Synchro to determine if the Level of Service could be improved to acceptable levels. The improvements include:

- Lengthen the Route 104 eastbound left turn lane to 550 ft
- Construct new Dean Parkway southbound right turn lane – 200 ft length
- Modify traffic signal timing during peak hours

Projected traffic operation of the "Full Development with Dean Parkway Intersection Improvements" scenario at the Route 104 and Dean Parkway intersection is summarized in Table 5. The analysis indicates that overall intersection operation improves to LOS "D" or better, but LOS "F" is still expected for certain movements during both peak hours. This analysis indicates that more extensive improvements, such as widening Route 104 to provide an additional eastbound left turn lane or constructing a second point of access to the industrial park, would be required to achieve acceptable traffic operation with the identified developments within the Beh Industrial Park.

Capacity analysis reports for the Background and Full Development scenarios are included in Appendix A.



FULL DEVELOPMENT (2026)
PEAK HOUR
TRAFFIC VOLUMES

XX (XX) = AM (PM) PEAK HOUR VOLUME

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FULL DEVELOPMENT PEAK HOUR TRAFFIC VOLUMES		BEH INDUSTRIAL PARK TRAFFIC OPTIMIZATION STUDY
DRAWING NO.: FIGURE 13	SCALE: NTS	TOWN OF ONTARIO, WAYNE COUNTY

Table 5: Level of Service, Delay and Queuing

Intersection	Approach	Movement	Existing (2021) AM Peak Hour		Existing (2021) PM Peak Hour		Background (2026) AM Peak Hour		Background (2026) PM Peak Hour		Full Development (2026) (No-Build) AM Peak Hour		Full Development (2026) (No-Build) PM Peak Hour		Full Development (2026) with Dean Pkwy Intersection Improvements (Note 1) AM Peak Hour		Full Development (2026) with Dean Pkwy Intersection Improvements (Note 1) PM Peak Hour	
			LOS (Delay)	95th % Queue	LOS (Delay)	95th % Queue	LOS (Delay)	95th % Queue	LOS (Delay)	95th % Queue	LOS (Delay)	95th % Queue	LOS (Delay)	95th % Queue	LOS (Delay)	95th % Queue	LOS (Delay)	95th % Queue
NY 104 & Basket Rd	Eastbound	Left	E (62.1)	140 ft	E (62.0)	150 ft	E (65.1)	147 ft	E (63.8)	159 ft	E (65.1)	147 ft	E (63.8)	159 ft				
		Thru/Right	B (10.6)	215 ft	C (21.0)	662 ft	B (10.8)	228 ft	C (23.0)	744 ft	B (12.7)	295 ft	C (26.0)	880 ft				
	Westbound	Left	E (73.9)	15 ft	E (56.4)	24 ft	E (72.7)	14 ft	E (57.7)	25 ft	E (59.5)	15 ft	E (59.4)	29 ft				
		Thru/Right	B (16.8)	221 ft	B (19.0)	238 ft	B (20.0)	264 ft	C (21.4)	240 ft	C (22.7)	788 ft	C (20.2)	233 ft				
	Northbound	Left/Thru/Right	D (38.5)	42 ft	D (38.7)	42 ft	D (38.6)	43 ft	D (39.1)	44 ft	D (38.7)	44 ft	D (39.1)	44 ft				
	Southbound	Left/Thru/Right	D (39.0)	11 ft	D (45.8)	108 ft	D (39.1)	11 ft	D (46.9)	116 ft	D (39.4)	13 ft	D (47.1)	116 ft				
	Overall Intersection		**B (18.7)**		**C (24.1)**		**C (20.7)**		**C (26.2)**		**C (22.3)**		**C (27.1)**					
NY 104 & County Line Rd	Eastbound	Left/U-turn	E (55.2)	40 ft	D (49.7)	80 ft	D (45.4)	40 ft	D (50.3)	79 ft	D (45.1)	40 ft	D (50.6)	75 ft				
		Thru/Right	B (11.1)	145 ft	B (19.8)	478 ft	A (10.0)	151 ft	C (20.7)	502 ft	B (11.2)	207 ft	C (22.0)	528 ft				
	Westbound	Left/U-turn	C (33.9)	27 ft	E (57.2)	50 ft	C (33.0)	27 ft	D (55.0)	52 ft	C (33.5)	27 ft	E (59.7)	48 ft				
		Thru/Right	C (30.5)	610 ft	B (17.0)	250 ft	C (31.1)	634 ft	B (15.9)	278 ft	C (30.8)	608 ft	B (16.8)	318 ft				
	Northbound	Left/Thru/Right	D (42.3)	21 ft	D (44.2)	50 ft	D (42.4)	22 ft	D (44.4)	51 ft	D (42.4)	22 ft	D (44.4)	51 ft				
	Southbound	Left/Thru/Right	D (45.0)	80 ft	D (46.8)	49 ft	D (45.1)	83 ft	D (47.5)	54 ft	D (47.1)	101 ft	D (48.6)	60 ft				
	Overall Intersection		**C (25.4)**		**C (21.8)**		**C (25.2)**		**C (22.0)**		**C (24.8)**		**C (22.9)**					
NY 104 & Dean Pkwy	Eastbound	Left/U-turn	D (53.6)	246 ft	D (41.2)	75 ft	E (61.6)	266 ft	D (41.5)	75 ft	F (313.6)	631 ft	F (110.9)	217 ft	E (78.2)	520 ft	D (35.4)	141 ft
		Thru	B (11.8)	207 ft	C (21.3)	568 ft	B (11.6)	216 ft	C (22.1)	606 ft	B (12.5)	224 ft	C (22.1)	609 ft	A (3.2)	10 ft	C (30.0)	736 ft
	Westbound	U-turn	E (63.7)	11 ft	E (57.0)	29 ft	F (81.6)	11 ft	E (72.4)	31 ft	E (78.0)	11 ft	E (71.8)	30 ft	F (168.3)	12 ft	F (109.3)	31 ft
		Thru / Right	C (31.6)	665 ft	B (10.9)	253 ft	D (43.5)	703 ft	B (19.9)	266 ft	D (51.8)	547 ft	C (21.9)	278 ft	D (43.5)	845 ft	C (27.0)	329 ft
	Southbound	Left	D (48.4)	46 ft	E (56.1)	120 ft	D (48.6)	47 ft	E (57.5)	126 ft	E (58.8)	89 ft	F (157.8)	297 ft	F (105.3)	129 ft	D (49.9)	225 ft
		Right	D (44.5)	46 ft	D (46.2)	120 ft	D (44.5)	47 ft	D (47.0)	61 ft	D (45.3)	89 ft	F (108.6)	273 ft	D (52.2)	129 ft	D (41.4)	102 ft
	Overall Intersection		**C (28.9)**		**C (22.0)**		**D (37.0)**		**C (25.4)**		**F (81.4)**		**D (45.4)**		**D (41.6)**		**C (32.4)**	
NY 104 & Lincoln Rd	Eastbound	U-turn	D (50.8)	19 ft	D (52.1)	20 ft	D (50.0)	18 ft	D (53.7)	21 ft	D (45.7)	17 ft	D (52.2)	20 ft				
		Thru/Right	A (4.4)	117 ft	B (12.1)	392 ft	A (4.5)	123 ft	B (13.7)	436 ft	A (3.7)	110 ft	B (12.6)	417 ft				
	Westbound	Left/U-turn	E (56.5)	38 ft	D (54.9)	74 ft	E (63.6)	38 ft	E (67.8)	76 ft	E (62.8)	35 ft	E (68.3)	76 ft				
		Thru	A (9.0)	168 ft	A (7.0)	97 ft	A (5.9)	177 ft	A (5.2)	101 ft	A (6.6)	212 ft	A (5.2)	105 ft				
	Northbound	Left/Right	E (62.6)	115 ft	D (52.7)	87 ft	E (64.4)	119 ft	D (53.1)	90 ft	E (67.8)	136 ft	D (53.5)	93 ft				
	Overall Intersection		**B (11.2)**		**B (13.7)**		**A (9.4)**		**B (14.1)**		**A (9.7)**		**B (13.7)**					
NY 104 & Lakeside Rd	Eastbound	Left/U-turn	E (67.7)	57 ft	D (53.7)	65 ft	E (66.2)	58 ft	D (51.9)	63 ft	E (65.0)	57 ft	D (48.6)	59 ft				
		Thru/Right	B (15.0)	194 ft	B (14.5)	324 ft	B (14.2)	202 ft	B (14.2)	325 ft	B (14.4)	204 ft	B (13.3)	321 ft				
	Westbound	Left/U-turn	E (59.5)	35 ft	E (60.4)	14 ft	E (59.5)	35 ft	E (60.4)	14 ft	E (59.5)	35 ft	E (60.4)	14 ft				
		Thru/Right	B (11.9)	379 ft	B (10.3)	183 ft	B (12.5)	412 ft	B (10.5)	194 ft	B (13.4)	461 ft	B (10.7)	206 ft				
	Northbound	Left/Thru/Right	D (52.7)	20 ft	D (53.2)	50 ft	D (52.8)	20 ft	D (53.8)	53 ft	E (55.6)	25 ft	E (56.8)	59 ft				
	Southbound	Left/Thru/Right	E (60.4)	45 ft	E (65.4)	127 ft	E (61.2)	46 ft	E (67.7)	136 ft	E (62.0)	47 ft	E (68.3)	139 ft				
	Overall Intersection		**B (16.5)**		**B (17.4)**		**B (16.6)**		**B (17.3)**		**B (17.2)**		**B (16.8)**					
Dean Pkwy & Timothy Ln	Eastbound	Left/Thru/Right	A (0)	N/A	B (10.5)	N/A	A (0)	N/A	B (10.6)	N/A	A (8.9)	N/A	B (12.9)	N/A		N/A		N/A
	Westbound	Left/Thru/Right	B (11.3)		B (11.4)		B (11.5)		B (11.6)		C (20.1)		E (41.1)					
	Northbound	Left/Thru/Right	A (0)		A (1.2)		A (0)		A (1.2)		A (0.1)		A (0.4)					
	Southbound	Left/Thru/Right	A (0)		A (0.3)		A (0)		A (0.3)		A (0)		A (0.2)					
	Overall Intersection		**A (1.3)**		**A (4.3)**		**A (1.3)**		**A (4.3)**		**A (2.5)**		**B (12.1)**					

Notes:

1. Improvements at NY 104 & Dean Pkwy include traffic signal timing modifications, EB left turn lane lengthened to 550 ft, and new 200 ft southbound right turn lane on Dean Pkwy.

D. Infrastructure Gaps that Limit Mobility, Safety and Connectivity

Existing site infrastructure and facilities for vehicles, pedestrians, and bicycles were analyzed and assessed in the field to determine if improvements are needed to address mobility and safety concerns, circulation, and connectivity. A summary of needs and opportunities for each group of users is as follows:

1. Traffic Operation

The analysis of future traffic operation with new trips from identified future expansion projects within the Beh Industrial Park indicates that the Route 104 and Dean Parkway intersection will operate with significant congestion, delay, and long vehicle queues during peak hours. Intersection improvements such as new and lengthened turn lanes and traffic signal timing adjustments would improve traffic operation and safety somewhat, but additional points of access to the Beh Industrial Park should be investigated to relieve congestion at the Route 104 and Dean Parkway intersection and improve overall site circulation and connectivity.

Traffic Operation Needs and Opportunities:

- Lengthen the Route 104 eastbound left turn lane at Dean Parkway to accommodate peak hour traffic volumes and improve safety.
- Install a southbound right turn lane on Dean Parkway at Route 104.
- Improve or install new vehicle detection (loops or overhead sensors) on Dean Parkway at Route 104. Additional detection is needed north of the railroad tracks to accommodate trucks that stop and wait ahead of the tracks.
- Provide new site access point to Route 104 or a surrounding roadway such as County Line Road or Lakeside Road.

Note: *NYSDOT is planning to construct improvements at the Route 104 and Dean Parkway intersection, including lengthening the Route 104 eastbound left turn lane, replacing the traffic signal, and installing new vehicle detection systems, as part of an upcoming preventive maintenance and intersection improvement project.*

2. Pedestrian and Bicycle Facilities

There are no dedicated pedestrian or bicycle facilities within the study area. Pedestrians and bicyclists are permitted to use road shoulders where present. Signalized intersections along NYS Route 104 do not include crosswalks or pedestrian signal equipment.

The Beh Industrial Park roadways (Dean Parkway, David Parkway and Timothy Lane) do not have paved shoulders or sidewalks for pedestrian use. There are no pedestrian connections between individual properties within the site or connections between the site and businesses along NYS Route 104.

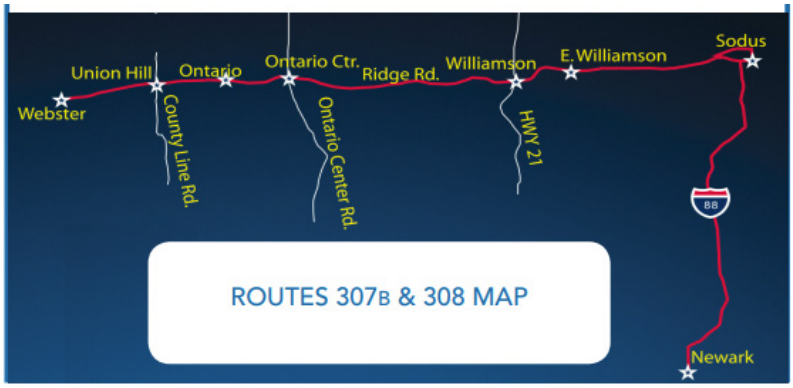
Pedestrian and Bicycle Needs and Opportunities:

- Construct a sidewalk or trail system within the Beh Industrial Park to provide a complete pedestrian network within the site. Pedestrian facilities should meet current ADA and PROWAG design standards.
- Provide a pedestrian connection from the Beh Industrial Park to Route 104.
- Add crosswalks and pedestrian signal equipment to the signalized intersections within the study area to improve pedestrian safety.
- Delineate pedestrian routes across driveways and parking areas.
- Encourage individual businesses to install bicycle amenities such as bike racks and promote bicycle usage, which could reduce vehicular trips to and from the site.

Note: *NYSDOT is planning to install pedestrian signals, crosswalks, and sidewalk pads at the Route 104 intersections with Basket Road, County Line Road, Dean Parkway, Lincoln Road and Lakeside Road as part of an upcoming preventive maintenance and intersection improvement project.*

3. Transit

There are no public transit facilities or routes within the study area. Regional Transit Service (RTS) does operate within Wayne County, and Route 307b & 308 utilize Ridge Road through the Town of Ontario, with stops at Union Hill and Ontario Center. Providing transit facilities and encouraging increased transit usage could reduce vehicular trips to the site and associated congestion.



RTS Route 307B & 308 Route Map

Transit Needs and Opportunities:

- Improve pedestrian routes between existing transit stops and the Beh Industrial Park (install crosswalks and pedestrian signal equipment at intersections, and sidewalks within the Beh site).
- Encourage RTS to provide more direct service to the Beh Industrial Park.
- Encourage individual businesses to promote transit usage, which could reduce vehicular trips to and from the site.

4. Pavement

Most pavement within the Beh Industrial Park was observed to be in fair to poor condition. Longitudinal and transverse cracking and utility patches are present throughout. There are no paved shoulders, and pavement edges are not well defined. Rutting and off-tracking is present along roadways throughout the site, particularly near driveways, which may indicate that the road geometry does not adequately accommodate the design vehicle.

Existing pavement condition along Dean Parkway

The northernmost +/- 1,000 feet of Dean Parkway received a recent asphalt overlay and is in better condition than the southern portion of Dean Parkway. The eastern end of Timothy Lane was recently constructed, and the pavement is in good condition.

Pavement Needs and Opportunities:

- Rehabilitate the pavement on Dean Parkway and Timothy Lane where needed.
- Install pavement markings including double yellow center stripes and white edge stripes.
- Evaluate areas along the edge of the road where rutting and off-tracking are present to determine if widening, shoulder improvements or driveway modifications are needed.

Note: *The Town of Ontario plans to mill and overlay the asphalt pavement on Dean Parkway once heavy construction is completed on development sites such as Intergrow.*

5. Drainage

A cursory evaluation of roadside drainage facilities was performed. Most drainage within the Beh Industrial Park sheet flows away from the roadways into roadside swales. Sections of closed drainage systems are present. Most drainage infrastructure including driveway culverts, headwalls and inlets were observed to be in fair to poor condition. The system of swales appears to drain reasonably well, but ponding was observed in some areas such as the intersection of Dean Parkway and David Parkway.

Damaged headwall along Dean Parkway

Drainage Needs and Opportunities:

- Improve drainage infrastructure including driveway culverts, inlets and headwalls where needed.
- Ensure open & closed drainage systems are regularly cleaned and maintained to promote positive drainage.

Note: *The Town of Ontario is currently evaluating drainage improvements in the vicinity of the Beh Industrial Park that would benefit overall drainage conditions within the project area.*

6. Traffic Signals

Traffic signals are present along NYS Route 104 at the intersections with Basket Road, County Line Road, Dean Parkway, Lincoln Road, and Lakeside Road. The signals are owned and operated by NYSDOT. They are all span wire mounted signals and were observed to be in fair condition. The signals lack reflective back plates or other high visibility treatments, and also lack pedestrian equipment including pushbuttons, signal heads and countdown timers.

Example of traffic signal with high-visibility back plates and pedestrian signal equipment

Traffic Signal Needs and Opportunities:

- Add high-visibility back plates to traffic signals to improve visibility and safety.
- Install pedestrian signal equipment and crosswalks at signalized intersections to improve pedestrian safety.

Note: *NYSDOT is planning to replace the traffic signals at the Route 104 intersections with Basket Road, County Line Road, Dean Parkway, Lincoln Road and Lakeside Road as part of an upcoming preventive maintenance and intersection improvement project. The new signals would include mast arms and high-visibility back plates.*

V: CORRIDOR RECOMMENDATIONS

Recommendations have been developed to improve mobility and safety for all users of the Beh Industrial Park, considering the needs and opportunities that were identified and are described in *Section IV: Needs and Opportunities.*

The recommendations include a new point of access to the Beh Industrial Park, improvements to the existing access at Dean Parkway and Route 104, multi-modal improvements within the study area, and infrastructure upgrades within the Beh Industrial Park. Conceptual cost estimates, potential funding sources, and implementation strategies have also been developed for each recommendation.

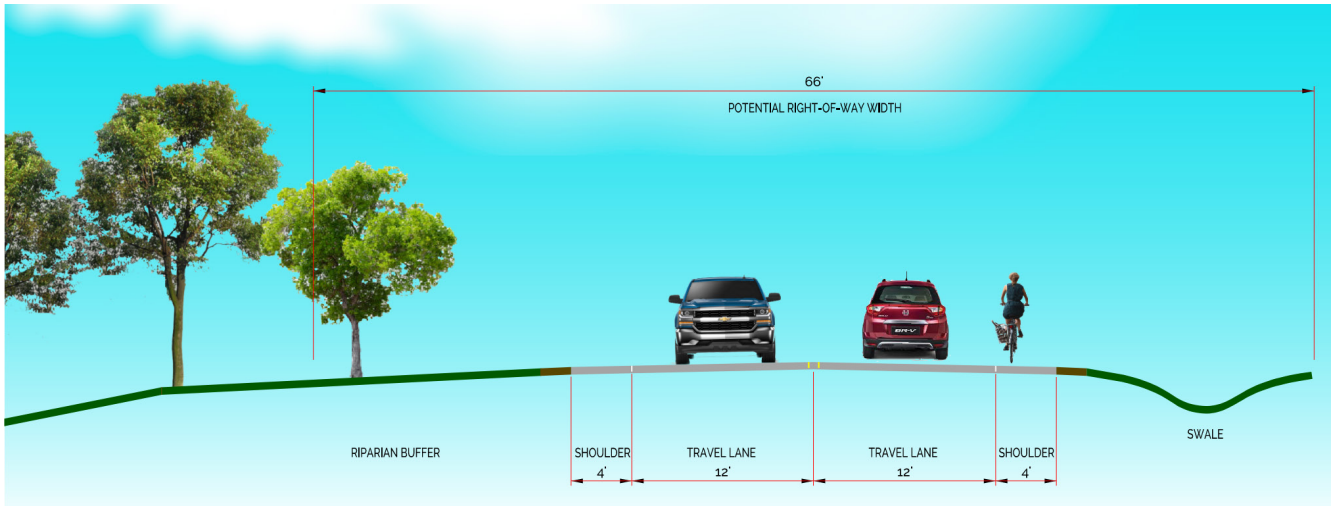
A. New Access to County Line Road

It is recommended that a new access road be constructed between Timothy Lane and County Line Road. The new access would:

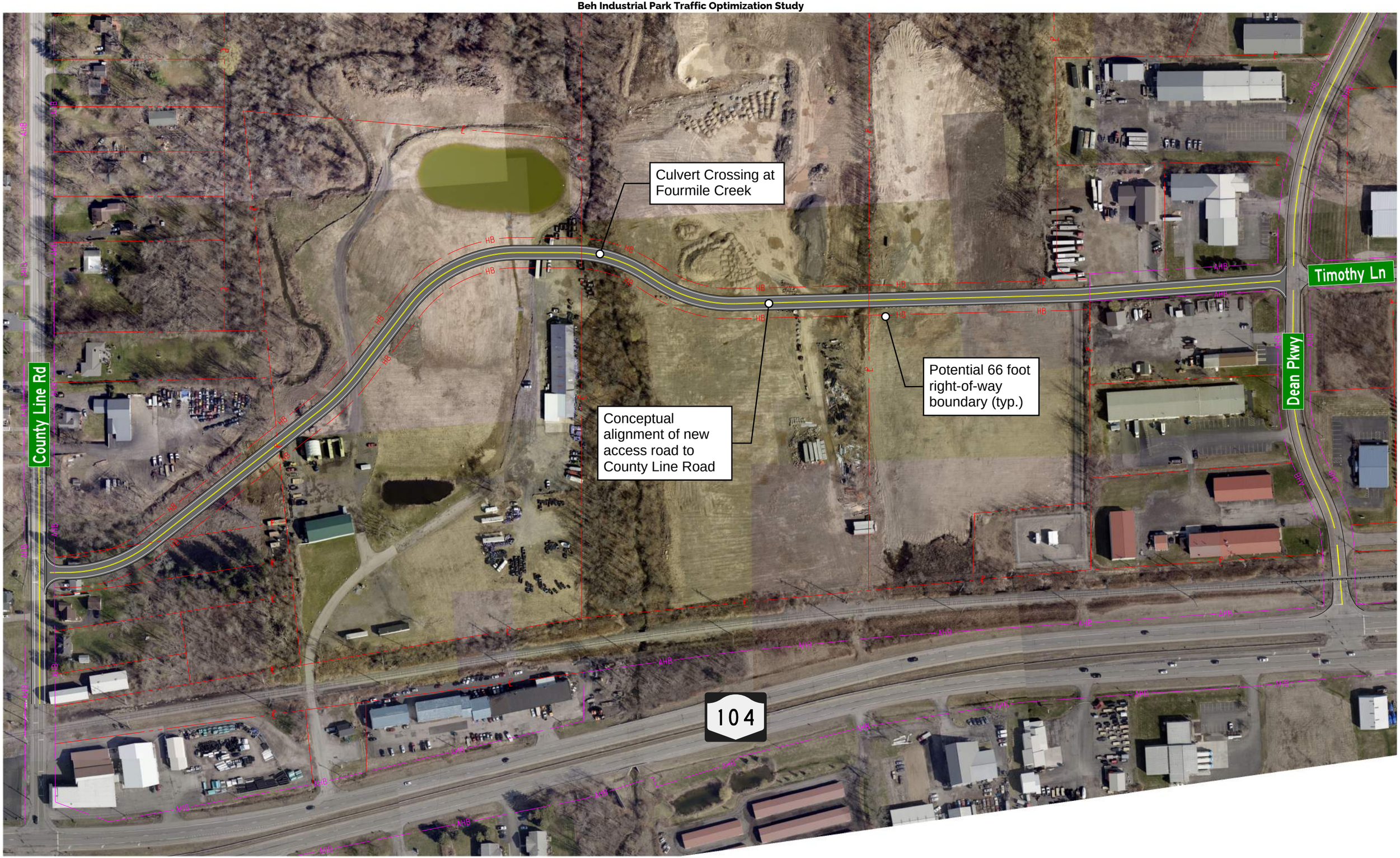
- **Alleviate traffic congestion at the Route 104 and Dean Parkway intersection by providing a second point of access for vehicles traveling to and from the Beh Industrial Park.**
- **Provide a second point of access (redundancy) for use in case of incident on Dean Parkway, and to improve emergency response time to the site.**
- **Improve access to properties and potential developable land in the western portion of the Beh Industrial Park.**

A conceptual alignment of the new access road extends from Timothy Lane and intersects County Line Road just south of Fourmile Creek within the property of #6258 County Line Road. The conceptual alignment minimizes disturbance within developed private property as well as environmentally sensitive areas such as wetlands and floodplain. The conceptual typical section of the access road includes one 12 ft travel lane and 4 ft shoulder in each direction, within a 66-foot right-of-way. The total length of new road is approximately 3,000 linear feet (0.57 mile).

The conceptual plan of the new access road to County Line Road is depicted on Figure 14. The conceptual typical section is depicted below.



Previous planning studies and documents recommended constructing an additional site access to the Beh Industrial Park by extending Timothy Lane east and south to intersect NYS Route 104 opposite Lincoln Road. At this time, an extension of Timothy Lane to Lincoln Road is not feasible due to the planned expansion of Intergrow (Phase 3), which will occupy the land between the existing facility and Route 104.



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BEH INDUSTRIAL PARK
CONCEPTUAL SITE ACCESS PLAN

DRAWING NO.: Figure 14 | SCALE: 1" = 200'

GENESEE TRANSPORTATION COUNCIL

BEH INDUSTRIAL PARK
TRAFFIC OPTIMIZATION STUDY
TOWN OF ONTARIO, WAYNE COUNTY

Traffic Analysis for New Access Road

An analysis was completed to assess traffic operation with a new access road connecting Timothy Lane and County Line Road. The new road would result in a re-distribution of Beh Industrial Park traffic since a portion of traffic would be diverted away from Dean Parkway and would use County Line Road instead. The traffic analysis studied the following intersections:

- NY Route 104 and Dean Parkway
- NY Route 104 and County Line Road
- County Line Road and New Access Road
- Dean Parkway and Timothy Lane

Full development traffic volumes (Year 2026) at the studied intersections were used as a baseline for the analysis (refer to Figure 13); the full development volumes include existing traffic, general background growth of 1% per year and new traffic from planned developments and business expansions within the Beh Industrial Park.

The traffic analysis assumed that the new access road would be used by 40% of the traffic approaching and leaving the Beh Industrial Park from the west, and 5% of the traffic approaching and leaving the Beh Industrial Park from the east. Traffic volumes with the new access road are depicted in Figure 15.

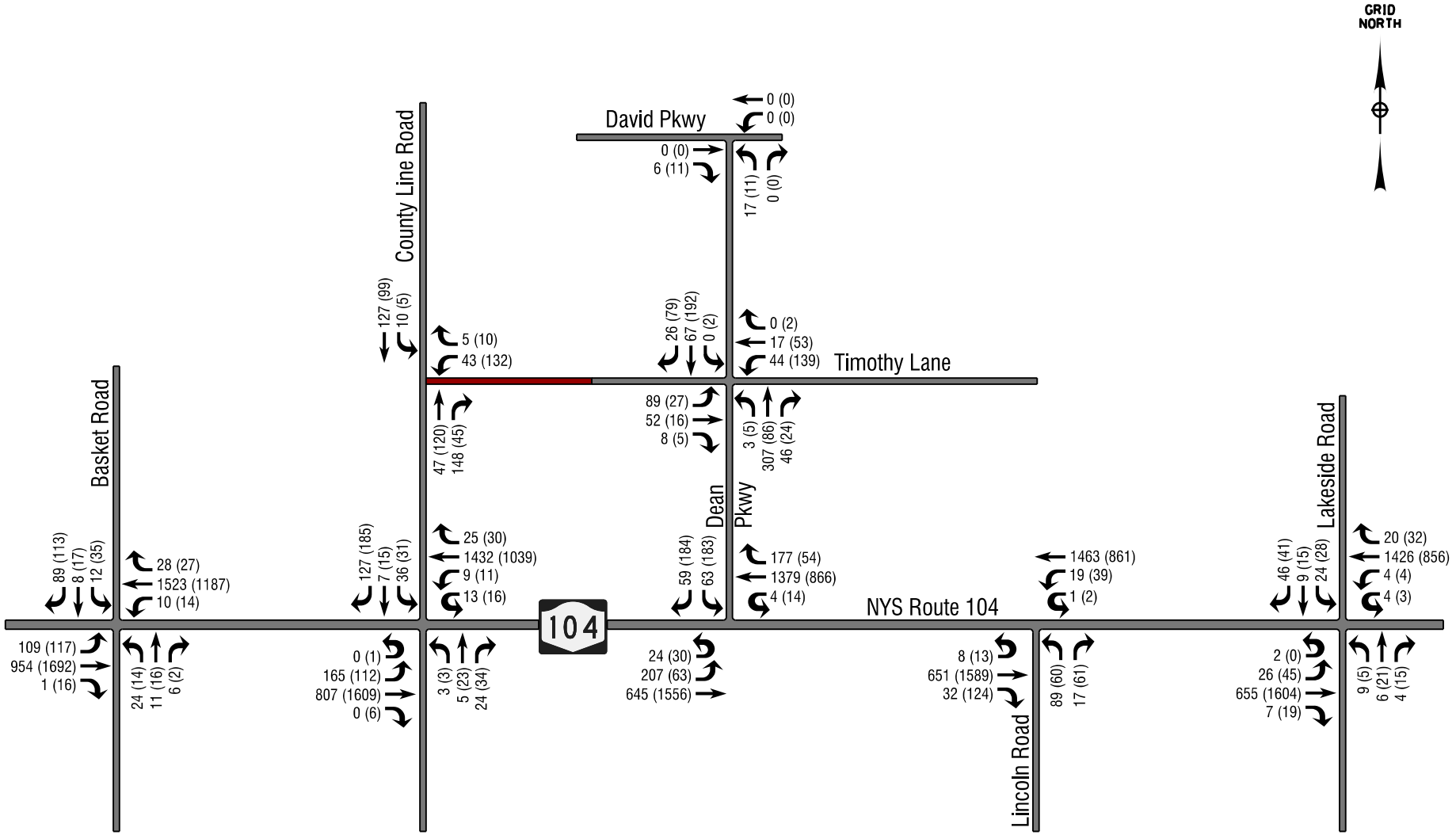
The new access road intersection with County Line Road was modeled as Stop control (Stop sign at the access road approach to County Line Road). All other existing intersection traffic control was assumed to be maintained.

Table 6 summarizes the projected traffic operation at Full Development (No-Build), Full Development + Dean Pkwy Intersection Improvements and No Access Road, and Full Development + Improvements and New Access Road. A summary of projected future traffic operation and comparison of the "build" scenarios follows the table.

The traffic analysis indicates that acceptable traffic operation can be maintained throughout the street network with the new access road in place. Level of Service "D" or better is projected at each intersection (overall intersection and individual movements) with the following exceptions:

- NY Route 104 and County Line Road intersection: westbound left / U-turn is projected to operate at LOS "E" during the AM peak hour. This is a low-volume movement (10 vehicles) and is not anticipated to be a significant concern.
- NYS Route 104 and Dean Parkway intersection: westbound U-turn is projected to operate at LOS "E" during the morning and afternoon peak hours. This is a low-volume movement (4 vehicles during the AM peak hour and 14 vehicles during the PM peak hour) and is not anticipated to be a significant concern.
- NYS Route 104 and Dean Parkway intersection: southbound left turn is projected to operate at LOS "E" during the AM peak hour. This intersection should be monitored for potential signal timing modifications as development occurs within the Beh Industrial Park. Also, with the new access road in place, traffic wishing to avoid delays at the Dean Parkway intersection may use the new access road to reach NY Route 104.

Capacity analysis reports are included in Appendix A.



FULL DEVELOPMENT (2026)
PEAK HOUR
TRAFFIC VOLUMES

XX (XX) = AM (PM) PEAK HOUR VOLUME

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GTC

FULL DEVELOPMENT PEAK HOUR
TRAFFIC VOLUMES
WITH NEW ACCESS ROAD

DRAWING NO.: FIGURE 15

SCALE: NTS

BEH INDUSTRIAL PARK
TRAFFIC OPTIMIZATION STUDY

TOWN OF ONTARIO, WAYNE COUNTY

Table 6: Level of Service, Delay and Queuing – Comparison of Full Development Scenarios

Intersection	Approach	Movement	Full Development (2026) (No-Build) AM Peak Hour		Full Development (2026) (No-Build) PM Peak Hour		Full Development (2026) with Dean Pkwy Intersection Improvements (Note 1) AM Peak Hour		Full Development (2026) with Dean Pkwy Intersection Improvements (Note 1) PM Peak Hour		Full Development (2026) with New Access Road and Improvements (Note 2) AM Peak Hour		Full Development (2026) with New Access Road and Improvements (Note 2) PM Peak Hour	
			LOS (Delay)	95th % Queue	LOS (Delay)	95th % Queue	LOS (Delay)	95th % Queue	LOS (Delay)	95th % Queue	LOS (Delay)	95th % Queue	LOS (Delay)	95th % Queue
NY 104 & Basket Rd	Eastbound	Left	E (65.1)	147 ft	E (63.8)	159 ft								
		Thru/Right	B (12.7)	295 ft	C (26.0)	880 ft								
	Westbound	Left	E (59.5)	15 ft	E (59.4)	29 ft								
		Thru/Right	C (22.7)	788 ft	C (20.2)	233 ft								
	Northbound	Left/Thru/Right	D (38.7)	44 ft	D (39.1)	44 ft								
	Southbound	Left/Thru/Right	D (39.4)	13 ft	D (47.1)	116 ft								
	Overall Intersection		**C (22.3)**		**C (27.1)**									
NY 104 & County Line Rd	Eastbound	Left/U-turn	D (45.1)	40 ft	D (50.6)	75 ft					D (44.5)	242 ft	D (54.7)	105 ft
		Thru/Right	B (11.2)	207 ft	C (22.0)	528 ft					B (11.6)	207 ft	C (25.1)	554 ft
	Westbound	Left/U-turn	C (33.5)	27 ft	E (59.7)	48 ft					E (77.6)	32 ft	D (54.6)	54 ft
		Thru/Right	C (30.8)	608 ft	B (16.8)	318 ft					B (11.4)	123 ft	C (22.7)	339 ft
	Northbound	Left/Thru/Right	D (42.4)	22 ft	D (44.4)	51 ft					D (42.4)	22 ft	D (41.4)	49 ft
	Southbound	Left/Thru/Right	D (47.1)	101 ft	D (48.6)	60 ft					D (49.3)	123 ft	D (51.9)	78 ft
	Overall Intersection		**C (24.8)**		**C (22.9)**						**B (17.2)**		**C (28.2)**	
NY 104 & Dean Pkwy	Eastbound	Left/U-turn	F (313.6)	631 ft	F (110.9)	217 ft	E (78.2)	520 ft	D (35.4)	141 ft	D (53.8)	303 ft	C (32.9)	100 ft
		Thru	B (12.5)	224 ft	C (22.1)	609 ft	A (3.2)	10 ft	C (30.0)	736 ft	A (5.9)	35 ft	C (32.5)	777 ft
	Westbound	U-turn	E (78.0)	11 ft	E (71.8)	30 ft	F (168.3)	12 ft	F (109.3)	31 ft	E (63.2)	12 ft	E (68.6)	28 ft
		Thru / Right	D (51.8)	547 ft	C (21.9)	278 ft	D (43.5)	845 ft	C (27.0)	329 ft	D (51.1)	867 ft	C (25.1)	28 ft
	Southbound	Left	E (58.8)	89 ft	F (157.8)	297 ft	F (105.3)	129 ft	D (49.9)	225 ft	E (60.8)	95 ft	D (49.1)	218 ft
		Right	D (45.3)	89 ft	F (108.6)	273 ft	D (52.2)	129 ft	D (41.4)	102 ft	D (47.5)	95 ft	D (38.8)	60 ft
	Overall Intersection		**F (81.4)**		**D (45.4)**		**D (41.6)**		**C (32.4)**		**D (40.4)**		**C (32.1)**	
NY 104 & Lincoln Rd	Eastbound	U-turn	D (45.7)	17 ft	D (52.2)	20 ft								
		Thru/Right	A (3.7)	110 ft	B (12.6)	417 ft								
	Westbound	Left/U-turn	E (62.8)	35 ft	E (68.3)	76 ft								
		Thru	A (6.6)	212 ft	A (5.2)	105 ft								
	Northbound	Left/Right	E (67.8)	136 ft	D (53.5)	93 ft								
	Overall Intersection		**A (9.7)**		**B (13.7)**									
NY 104 & Lakeside Rd	Eastbound	Left/U-turn	E (65.0)	57 ft	D (48.6)	59 ft								
		Thru/Right	B (14.4)	204 ft	B (13.3)	321 ft								
	Westbound	Left/U-turn	E (59.5)	35 ft	E (60.4)	14 ft								
		Thru/Right	B (13.4)	461 ft	B (10.7)	206 ft								
	Northbound	Left/Thru/Right	E (55.6)	25 ft	E (56.8)	59 ft								
	Southbound	Left/Thru/Right	E (62.0)	47 ft	E (68.3)	139 ft								
	Overall Intersection		**B (17.2)**		**B (16.8)**									
Dean Pkwy & Timothy Ln	Eastbound	Left/Thru/Right	A (8.9)	N/A	B (12.9)	N/A		N/A		N/A	C (15.7)	N/A	C (19.1)	N/A
	Westbound	Left/Thru/Right	C (20.1)		E (41.1)						C (18.3)		D (25.7)	
	Northbound	Left/Thru/Right	A (0.1)		A (0.4)						A (0.1)		A (0.5)	
	Southbound	Left/Thru/Right	A (0)		A (0.2)						A (0)		A (0.2)	
	Overall Intersection		**A (2.5)**		**B (12.1)**						**A (5.8)**		**A (8.9)**	
County Line Rd & New Access Road	Westbound	Left/Right	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	B (10.6)	N/A	B (11.5)	N/A
	Northbound	Thru/Right									A (0)		A (0)	
	Southbound	Left/Thru									A (0.7)		A (0.4)	
	Overall Intersection										**A (1.7)**		**A (4.1)**	

Notes:

1. Improvements at Route 104 & Dean Pkwy include traffic signal timing modifications, EB left turn lane lengthened to 550 ft, and new 200 ft southbound right turn lane on Dean Pkwy.
2. Improvements include New Access Road connecting Timothy Lane to County Line Road; Route 104 & Dean Pkwy Intersection Improvements (see Note 1); Signal timing modifications at NY 104 & County Line Road intersection.

Comparison of Full Development Alternatives

Full Development No-Build Comparison to Full Development + Improvements and New Access Road
As depicted in Table 6, a comparison of the Full Development No-Build scenario with the Full Development + Improvements and New Access Road scenario indicates that the new access road would improve LOS at the Route 104 & Dean Parkway intersection as follows:

AM Peak Hour
- Overall Intersection improves from LOS "F" to LOS "D"
- Eastbound Left Turn improves from LOS "F" to LOS "D"
- Eastbound Thru improves from LOS "B" to LOS "A"

The Route 104 westbound and Dean Parkway southbound movements are projected to operate with similar LOS under both scenarios.

PM Peak Hour
- Overall Intersection improves from LOS "D" to LOS "C"
- Eastbound Left Turn improves from LOS "F" to LOS "C"
- Southbound Left and Right Turns improve from LOS "F" to LOS "D"

The Route 104 eastbound thru, and Route 104 westbound movements are projected to operate with similar LOS under both scenarios.

Full Development + Improvements and No Access Road Comparison to Full Development + Improvements and New Access Road
As depicted in Table 6, a comparison of the Full Development scenarios with and without the new access road indicates similar overall intersection LOS in both scenarios, but the new access road would improve LOS at the Route 104 & Dean Parkway intersection as follows:

AM Peak Hour
- Eastbound Left Turn improves from LOS "E" to LOS D"
- Westbound U-turn improves from LOS "F" to LOS "E"
- Southbound Left Turn improves from LOS "F" to LOS "E"

PM Peak Hour
- Eastbound Left Turn improves from LOS "D" to LOS "C"
- Westbound U-turn improves from LOS "F" to LOS "E"

Design Considerations, Conceptual Cost Estimate and Implementation

Table 7 summarizes design considerations for the new access road. The conceptual cost estimate for the new access road is summarized in Table 8, and potential funding opportunities are described in Table 9. Cost estimate calculations are included in Appendix C.

Table 7: New Access Road Design Considerations

Design Consideration	Comments
Right-of-way	Town of Ontario will need to acquire property and establish right-of-way for new access road.
Property Impacts	The conceptual alignment would likely require the acquisition and demolition of House #6258 County Line Road.
State Polluant Discharge Elimination System (SPDES)	The Project will need to follow all regulations of NYSDEC General Permit in effect at the time of construction. Post Construction Stormwater Management Practices will be required.
Stream Crossing	New access road involves crossing of Fourmile Creek, which is a Class C stream.
Environmental Impacts	Impacts to wetlands are not anticipated. A full environmental screening will be required during detailed design phases.
Permitting	New road connection and work within County Line Road right-of-way will require permit and coordination with Monroe County Department of Transportation.
Utilities	Consideration should be given to extending water and sewer lines along new access road to serve adjacent properties.

Table 8: New Access Road Conceptual Cost Estimate

Item	Cost (Note 1)
New Road (Pavement, stone base, earthwork, right-of-way restoration, signage and pavement markings)	$1,104,000
Culvert at Fourmile Creek	$140,000
Water & Sewer Lines	$855,000
Subtotal	**$2,099,000**
Work Zone Traffic Control (3%)	$62,970
Erosion & Sediment Control (3%)	$62,970
Survey & Stakeout (5%)	$104,950
Subtotal	**$2,239,890**
Mobilization (4%)	$93,195
Subtotal	**$2,423,085**
Contingency (20%)	$484,615
Opinion of Probable Construction Cost	**$2,907,700**
Engineering Survey & Design (10%)	$290,770
Total Conceptual Cost Estimate	**$3,198,470**

Notes:

1. Cost estimates were prepared using New York State Department of Transportation average bid prices

Table 9: New Access Road Potential Funding and Implementation

Source	Comments
Transportation Improvement Program (TIP)	20% match required; no limits identified
Empire State Development (ESD) Capital Grant	Up to 20% of project costs
Community Development Block Grant (CDBG) Economic Development	Up to $750,000 for infrastructure linked to an economic development project (i.e. new or expanded facility within the park)
Rebuilding America Infrastructure with Sustainability and Equity (RAISE) Grant (Former BUILD / TIGER program)	Min. $5 million, Max $25 million with 20% match. Requires preliminary engineered plans, cost estimates, cost/benefit analysis, resolution of right-of-way and environmental issues

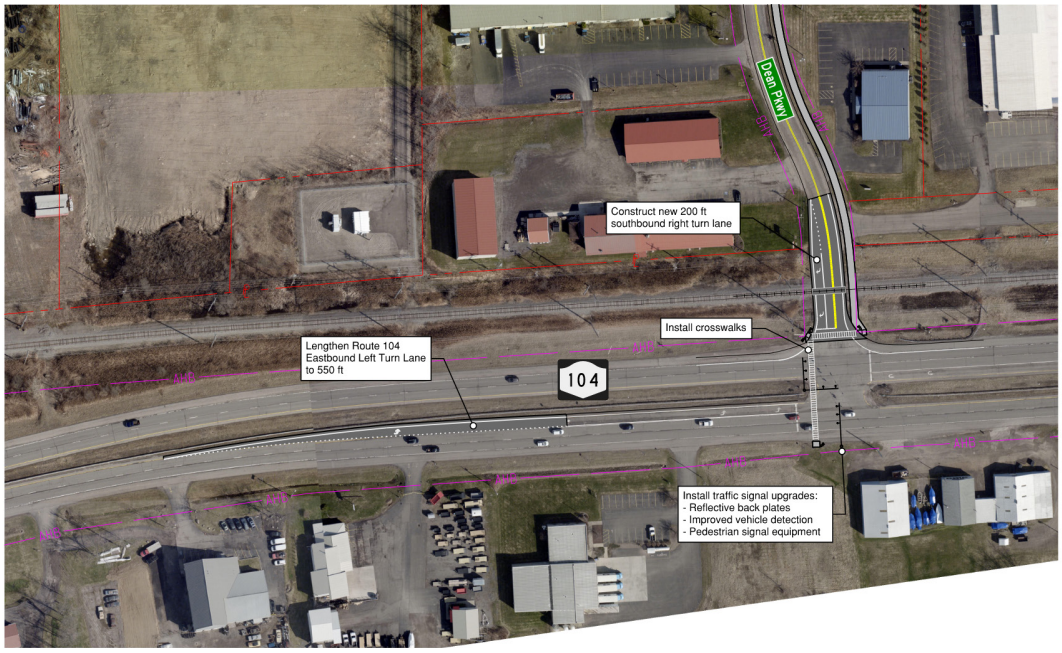
The Infrastructure Investment and Jobs Act recently passed by Congress may have additional funding opportunities.

1. Traffic Control (3%), Erosion Control (3%), Survey & Stakeout (5%), Mobilization (4%), and Contingency (20%).
2. Cost estimate includes items in Note 1 plus Engineering Survey & Design (15%).

B. NYS Route 104 and Dean Parkway Intersection Improvements

It is recommended that geometric and traffic signal improvements be implemented at the Route 104 and Dean Parkway intersection, The proposed upgrades would:

- **Reduce traffic congestion and delay for vehicles entering and leaving the Beh Industrial Park.**
- **Improve safety for vehicles and multi-modal users.**



Recommended improvements at the NY Route 104 and Dean Parkway intersection

Table 10: NY Route 104 and Dean Parkway Intersection Improvements

Element	Primary Responsibility	Conceptual Construction Cost Estimate (Note 1)	Comments
Lengthen Route 104 eastbound left turn lane	NYSDOT	$90,000	NYSDOT plans to implement as part of future capital improvement project
Construct new Dean Pkwy southbound right turn lane	Town of Ontario	$64,000 (Note 2)	Requires permit & coordination with NYSDOT - Additional future traffic study and NYSDOT approval may be required; Requires coordination with railroad
Upgrade or replace traffic signal, install pedestrian signal equipment & crosswalk	NYSDOT	$200,000	NYSDOT plans to implement as part of future capital improvement project
Total Conceptual Cost Estimate		**$345,000**	

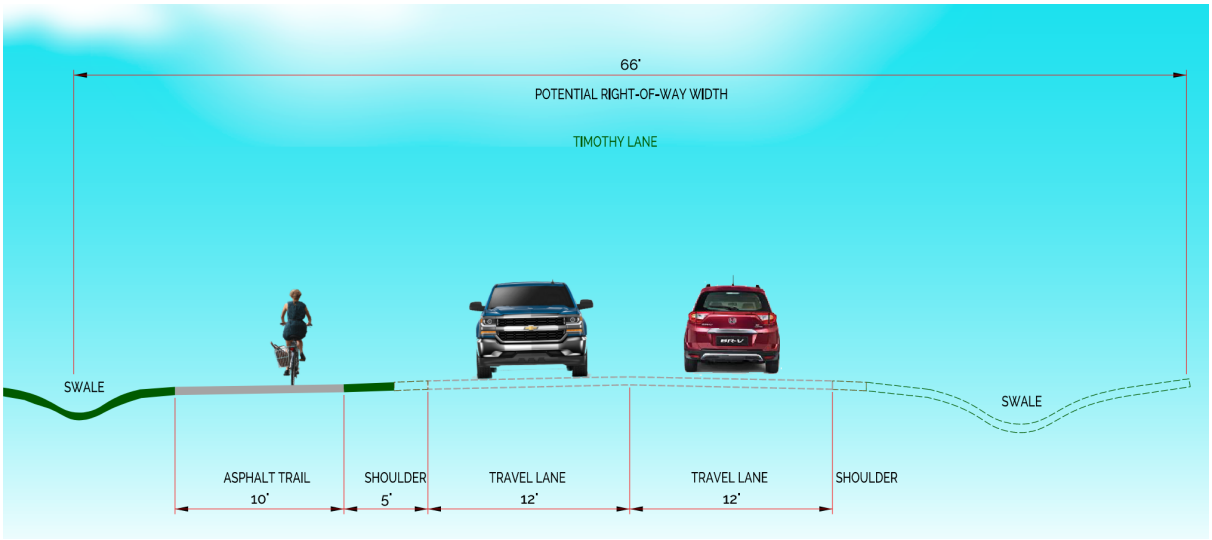
Notes:

1. Cost estimates were prepared using New York State Department of Transportation average bid prices and include Work Zone Traffic Control (3%), Erosion Control (3%), Survey & Stakeout (5%), Mobilization (4%), and Contingency (20%).
2. Cost estimate includes items in Note 1 plus Engineering Survey & Design (15%).

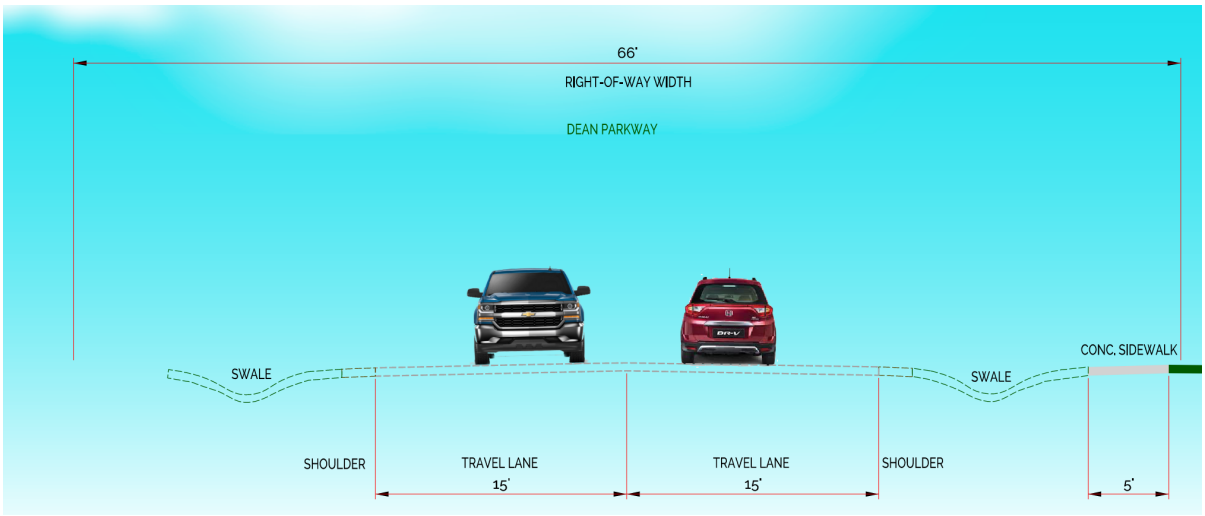
C. Sidewalk / Trail System within Beh Industrial Park

It is recommended that a new sidewalk or trail system be constructed within the Beh Industrial Park, A new sidewalk / trail system would:

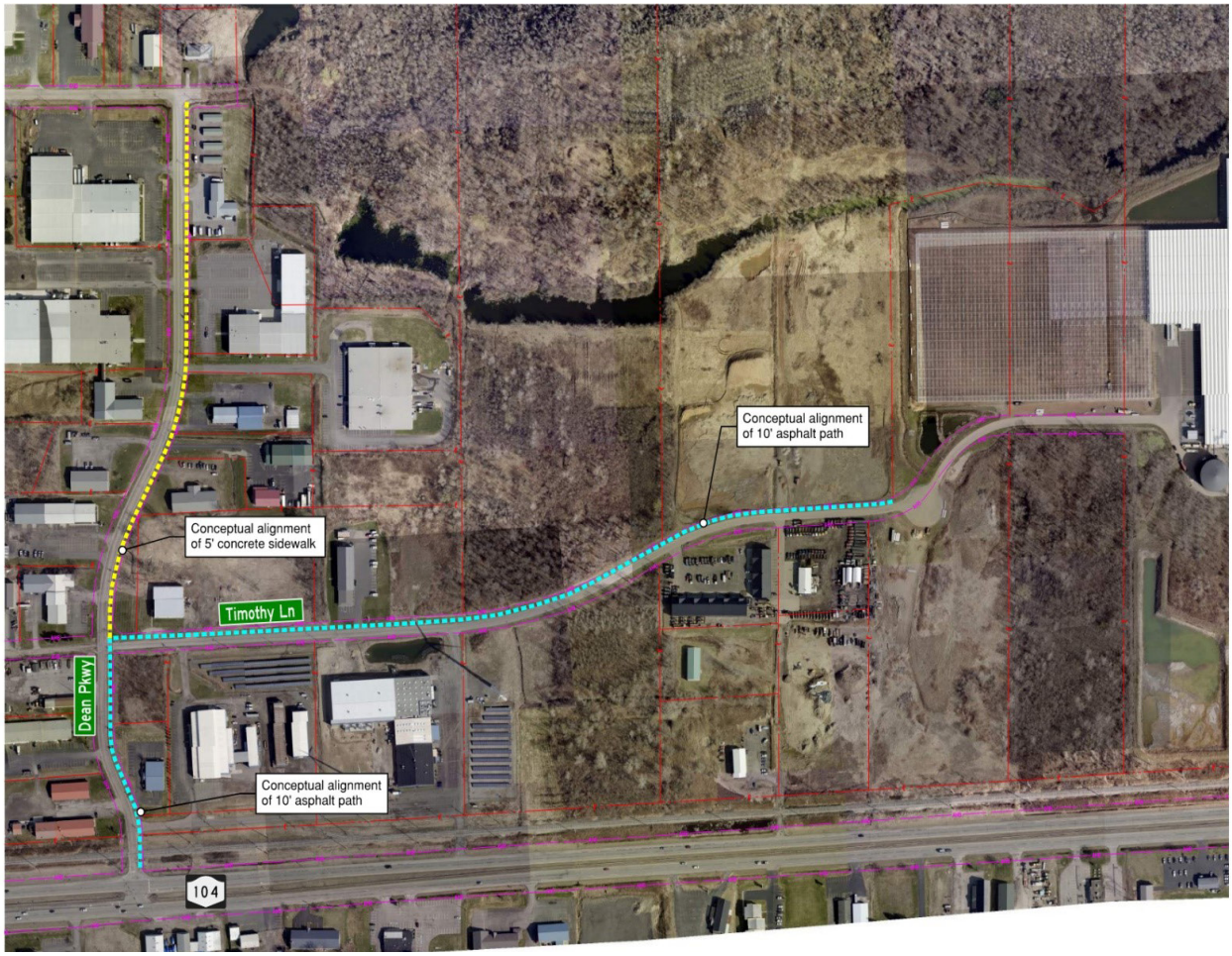
- **Provide pedestrian connections between businesses within the Beh Industrial Park, and connections to Route 104 and nearby transit stops.**
- **Provide health and recreational benefits for employees and users of the Beh Industrial Park.**
- **Accommodate and connect to future Route 104 trail system.**



Conceptual typical section of new 10' asphalt path along Timothy Lane



Conceptual typical section of new 5' sidewalk along Dean Parkway



Conceptual sidewalk & path alignments

Table 11: Sidewalk / Trail System Improvements

Element	Primary Responsibility	Conceptual Construction Cost Estimate	Comments
Install sidewalk or trail system within Beh Industrial Park	Town of Ontario Property Owners	$710,000	Sidewalk & trail alignments should Incorporate future Route 104 trail
Total Conceptual Cost Estimate		**$710,000**	

Notes:

1. Cost estimates were prepared using New York State Department of Transportation average bid prices and include Work Zone Traffic Control (3%), Erosion Control (3%), Survey & Stakeout (5%), Mobilization (4%), Contingency (20%), and Engineering Survey & Design (6%).

Table 12: Sidewalk / Trail System Design Considerations

Consideration	Comments
Right-of-way	Sidewalk / trail should be installed within existing right-of-way where feasible. Existing right-of-way appears adequate.
Property Impacts	East side of Dean Parkway and north side of Timothy Lane appear most favorable for new sidewalk / trail system. Impacts to private property are expected to be minimal. Re-grading of existing swales will be required.
State Polluant Discharge Elimination System (SPDES)	The Project will need to follow all regulations of NYSDEC General Permit in effect at the time of construction. Post Construction Stormwater Management Practices may be required.
Environmental Impacts	Impacts to wetlands are not anticipated. A full environmental screening will be required during detailed design phases.
Drainage	Closed drainage system of inlets and pipes may be required in certain locations to drain area between road and sidewalk.

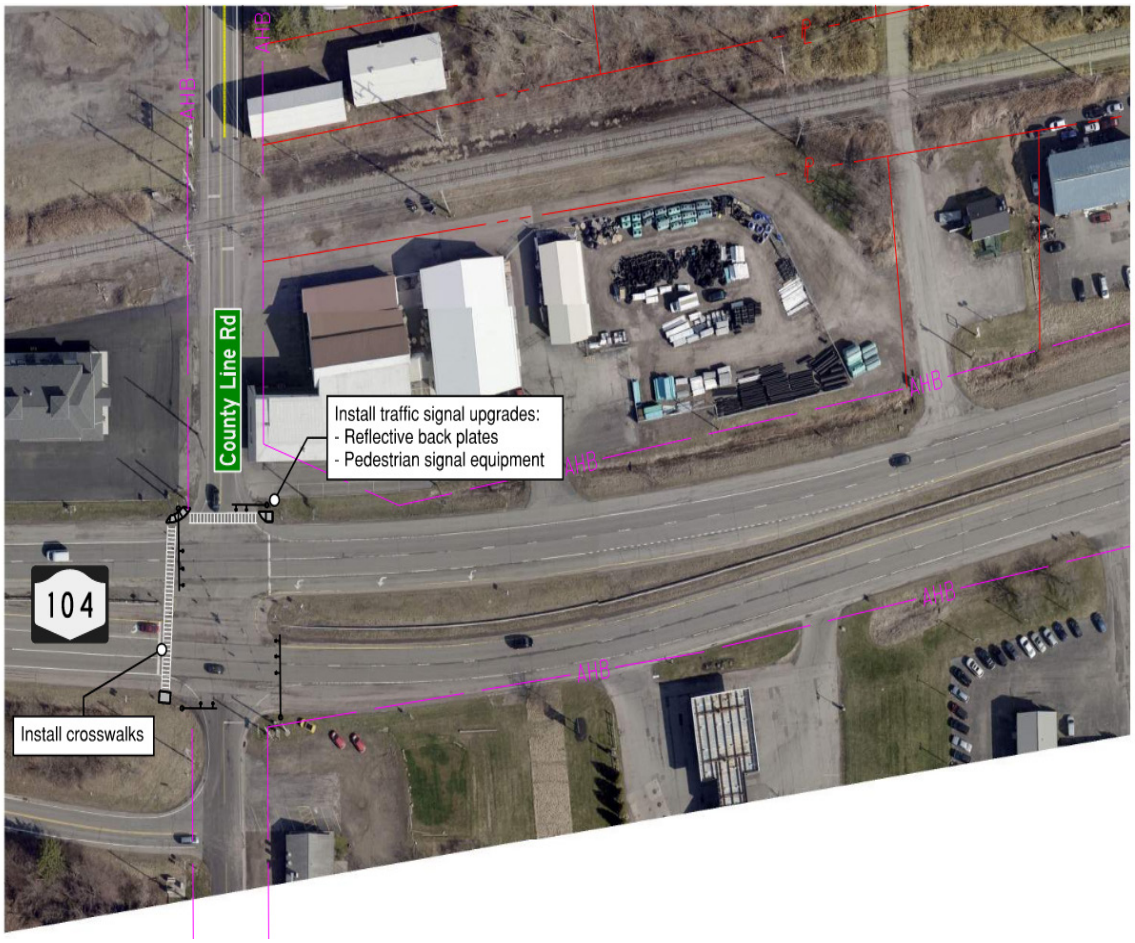
Table 13: Sidewalk / Trail System Potential Funding and Implementation

Source	Comments
Transportation Alternative Program (TAP)	Up to $5 million, 20% match required
Climate Smart Communities (CSC)	Up to $2 million; 50% match required
Environmental Protection Fund	Up to $500,000, or $750,000 if costs exceed $4 million. For trails and park areas.
Transportation Improvement Program (TIP)	20% match required, no limits identified
Empire State Development (ESD) Capital Grant	Up to 20% of project costs
Community Development Block Grant (CDBG) Economic Development	Up to $750,000 for infrastructure linked to an economic development project (i.e. new or expanded facility within the park)

D. Traffic Signal and Pedestrian Improvements at NYS Route 104 Intersections with Basket Road, County Line Road, Lincoln Road and Lakeside Road

It is recommended that traffic signal upgrades be implemented at the NY Route 104 intersections with Basket Road, County Line Road, Lincoln Road and Lakeside Road. The upgrades would:

- **Improve traffic flow along Route 104 and adjacent side streets.**
- **Provide high-visibility treatments to improve safety for drivers and multi-modal users.**
- **Provide infrastructure for safe pedestrian crossings of Route 104.**



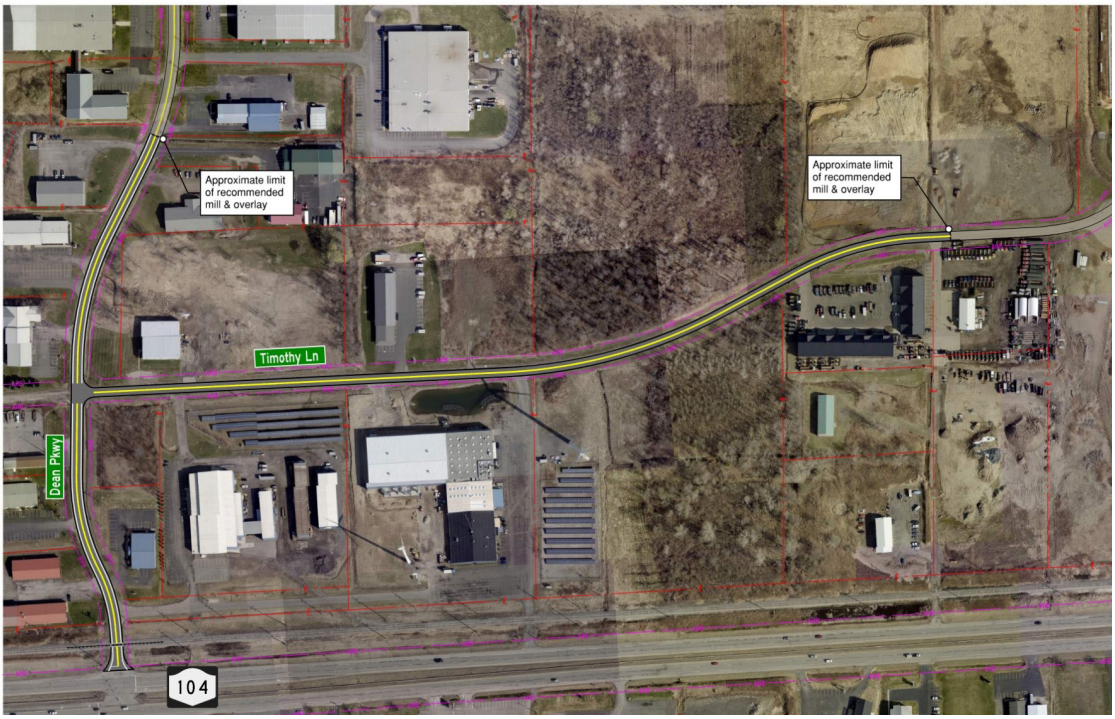
Example of recommended improvements at NYS Route 104 signalized intersections

Table 14: Traffic Signal and Pedestrian Improvements at NYS Route 104 Intersections

Element	Primary Responsibility	Conceptual Construction Cost Estmate (Note 1)	Comments
Upgrade or replace traffic signal; Install pedestrian signal equipment, sidewalk pads and crosswalks	NYSDOT	$200,000 per intersection	NYSDOT plans to implement as part of a future capital improvement project
Total Conceptual Cost Estimate		**$800,000**	

E. Infrastructure Improvements within Beh Industrial Park

It is recommended that pavement areas along Dean Parkway and Timothy Lane in need of rehabilitation receive a mill and overlay treatment to extend the life and maintain safe and efficient travel along the roadway. Drainage conditions within the Beh Industrial Park should be regularly monitored. Infrastructure within the right-of-way including driveway culverts, closed drainage systems, and roadside swales should be regularly inspected, cleaned, and replaced as needed.



Area of recommended mill and overlay on Dean Parkway and Timothy Lane

Table 15: Infrastructure Improvements within Beh Industrial Park

Element	Primary Responsibility	Conceptual Construction Cost Estimate (Note 1)	Comments
Mill & overlay pavement on Dean Parkway and Timothy Lane	Town of Ontario	$315,000	Town plans to rehabilitate pavement once major construction projects within the park are complete.
Drainage improvements: spot repairs to driveway culverts and headwalls, maintenance and cleaning of roadside swales	Town of Ontario	Varies based on work and location	

Notes:

1. Cost estimates were prepared using New York State Department of Transportation average bid prices and include Work Zone Traffic Control (3%), Erosion Control (3%), Survey & Stakeout (5%), Mobilization (4%), Contingency (20%), and Engineering Survey & Design (6%).

F. Funding Opportunities

Various grant and funding programs are available to offset costs involved in implementing recommendations within the Beh Industrial Park. A consolidated list of potential funding programs is provided in Table 16.

Table 16: Potential Funding Opportunities

Source	Types of Projects	Comments
Transportation Improvement Program (TIP)	Highway and multi-modal projects	20% match required; no limits identified
Empire State Development (ESD) Capital Grant	Capital-based economic developments intended to create / retain jobs and/or increase business activity	Up to 20% of project costs including land / building acquisition, demolition / environmental remediation, new construction, planning & feasibility studies. Up to 25% of soft costs
Community Development Block Grant (CDBG) Economic Development	Infrastructure linked to economic development, job creation / retention	Up to $750,000
Rebuilding America Infrastructure with Sustainability and Equity (RAISE) Grant (Former BUILD / TIGER program)	Road, rail, transit, and port projects	Min. $5 million, Max $25 million with 20% match. Requires preliminary engineered plans, cost estimates, cost/benefit analysis, resolution of right-of-way and environmental issues
Transportation Alternatives Program (TAP)	Pedestrian and bicycle facilities	Up to $5 million, 20% match required
Climate Smart Communities (CSC)	Projects that reduce greenhouse gas emissions and adapt to changing climate	Up to $2 million, 50% match required
Environmental Protection Fund	Trails and park projects	Up to $500,000, or $750,000 if costs exceed $4 million.

G. Implementation and Follow-on Activities

Pursue Funding Opportunities

This Plan provides a tool for the Town of Ontario, Wayne County and other partners to actively engage State and Federal officials and justify that the project is a priority for the Town and users of the Beh Industrial Park. Having the Plan may differentiate the Town's requests for funding from other funding applications, as it demonstrates the commitment and support of the local community. The Town and partnering agencies should agree on priority project(s) to pursue (such as the new access road) and select funding opportunities that best align with the project(s), and also begin to plan for any local matching funds that may be required for grant programs.

Initiate Design of New Access Road

If the Town of Ontario intends to pursue construction of a new access road connecting Timothy Lane to County Line Road, the Town should initiate the process by engaging a design professional and beginning tasks such as survey, environmental studies, and conceptual design of the new roadway. Establishing the exact alignment of the new road will require close coordination with property owners within the affected area and establishment of a right-of-way for the road by way of property acquisition. Tasks required for subsequent design phases (Preliminary / Final Design) may vary based on funding sources used and potential involvement of State or Federal partnering agencies.

Integrate Plan Recommendations in the Development Review Process

The Beh Industrial Park is expected to experience continual growth and development in the coming years. As individual applications for development occur, the Town of Ontario should ensure that the recommendations within this Plan are considered during the site plan review and approval process.

For example, new developments could include new sidewalk segments with the intent of eventually completing a sidewalk or trail network within the industrial park. Applications for new development or modified site plans should avoid areas earmarked for future sidewalks / trails or the future Route 104 trail. Developments within the western portion of the site should consider the future access road to County Line Road.

Maintain Close Coordination with NYSDOT and Other Partnering Agencies

Primary access to the Beh Industrial Park is from the NYS Route 104 corridor. Many of the identified traffic and congestion issues at the Route 104 and Dean Parkway intersection and other Route 104 intersections will be addressed as part of an upcoming NYSDOT capital improvement project.

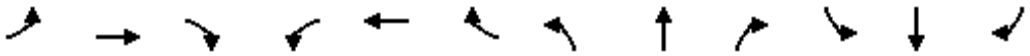
As development occurs within the Beh Industrial Park, NYSDOT should continually monitor traffic operation at the Route 104 and Dean Parkway intersection and other intersections within the study area to ensure that safe and efficient traffic operation is maintained for all users of the Beh Industrial Park. Periodic signal timing and coordination adjustments may be needed as new and expanded developments within the park are completed.

Implementation of the Plan's recommendations may require coordinating with and obtaining permits from local, county and state agencies. For example, the new access road connection at County Line Road will require a permit from the Monroe County Department of Transportation. Work within the Route 104 right-of-way will require a work permit from the New York State Department of Transportation. Projects may also require State Pollutant Discharge Elimination System (SPDES) and other environmental-related permits from New York State.

APPENDIX A

Traffic Information

Capacity Analysis
Existing AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	104	750	1	9	1403	26	23	10	3	9	8	85
Future Volume (vph)	104	750	1	9	1403	26	23	10	3	9	8	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.5		4.5	6.5			5.5			5.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	1.00		1.00	1.00			0.98			0.90	
Flt Protected	0.95	1.00		0.95	1.00			0.97			0.99	
Satd. Flow (prot)	1687	3371		1719	3425			1800			1514	
Flt Permitted	0.95	1.00		0.95	1.00			0.83			0.97	
Satd. Flow (perm)	1687	3371		1719	3425			1542			1470	
Peak-hour factor, PHF	0.81	0.89	0.25	0.75	0.90	0.63	0.82	0.63	0.50	0.56	0.50	0.85
Adj. Flow (vph)	128	843	4	12	1559	41	28	16	6	16	16	100
RTOR Reduction (vph)	0	0	0	0	1	0	0	4	0	0	80	0
Lane Group Flow (vph)	128	847	0	12	1599	0	0	46	0	0	52	0
Heavy Vehicles (%)	7%	7%	7%	5%	5%	5%	1%	1%	1%	12%	12%	12%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	12.3	73.4		1.6	62.7			23.5			23.5	
Effective Green, g (s)	12.3	73.4		1.6	62.7			23.5			23.5	
Actuated g/C Ratio	0.11	0.64		0.01	0.55			0.20			0.20	
Clearance Time (s)	4.5	6.5		4.5	6.5			5.5			5.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	180	2151		23	1867			315			300	
v/s Ratio Prot	c0.08	0.25		0.01	c0.47							
v/s Ratio Perm								0.03			c0.04	
v/c Ratio	0.71	0.39		0.52	0.86			0.15			0.17	
Uniform Delay, d1	49.6	10.0		56.3	22.3			37.5			37.7	
Progression Factor	1.00	1.00		1.04	0.57			1.00			1.00	
Incremental Delay, d2	12.4	0.5		15.2	4.1			1.0			1.3	
Delay (s)	62.1	10.6		73.9	16.8			38.5			39.0	
Level of Service	E	B		E	B			D			D	
Approach Delay (s)		17.4			17.3			38.5			39.0	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	18.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	67.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	128	847	12	1600	50	132
v/c Ratio	0.71	0.38	0.12	0.86	0.16	0.35
Control Delay	71.1	9.5	55.7	17.5	36.1	15.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.1	9.5	55.7	17.5	36.1	15.0
Queue Length 50th (ft)	92	122	10	116	28	19
Queue Length 95th (ft)	140	215	m15	221	42	11
Internal Link Dist (ft)		611		3135	424	763
Turn Bay Length (ft)	200		150			
Base Capacity (vph)	198	2257	201	1869	319	380
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.65	0.38	0.06	0.86	0.16	0.35

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	26	736	0	12	8	1352	13	3	5	18	26	7
Future Volume (vph)	26	736	0	12	8	1352	13	3	5	18	26	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5			6.5	6.5			6.5			6.5
Lane Util. Factor	1.00	0.95			1.00	0.95			1.00			1.00
Frt	1.00	1.00			1.00	1.00			0.91			0.90
Flt Protected	0.95	1.00			0.95	1.00			0.99			0.99
Satd. Flow (prot)	1687	3374			1703	3397			1549			1643
Flt Permitted	0.95	1.00			0.95	1.00			0.96			0.93
Satd. Flow (perm)	1687	3374			1703	3397			1501			1539
Peak-hour factor, PHF	0.72	0.85	0.25	0.60	0.50	0.92	0.55	0.75	0.63	0.75	0.93	0.88
Adj. Flow (vph)	36	866	0	20	16	1470	24	4	8	24	28	8
RTOR Reduction (vph)	0	0	0	0	0	1	0	0	20	0	0	89
Lane Group Flow (vph)	36	866	0	0	36	1493	0	0	16	0	0	52
Heavy Vehicles (%)	7%	7%	7%	6%	6%	6%	6%	11%	11%	11%	3%	3%
Turn Type	Prot	NA		Prot	Prot	NA		Perm	NA		Perm	NA
Protected Phases	7	4		3	3	8			2			6
Permitted Phases								2			6	
Actuated Green, G (s)	6.3	72.5			5.5	71.7			17.5			17.5
Effective Green, g (s)	6.3	72.5			5.5	71.7			17.5			17.5
Actuated g/C Ratio	0.05	0.63			0.05	0.62			0.15			0.15
Clearance Time (s)	6.5	6.5			6.5	6.5			6.5			6.5
Vehicle Extension (s)	3.0	3.0			3.0	3.0			3.0			3.0
Lane Grp Cap (vph)	92	2127			81	2117			228			234
v/s Ratio Prot	0.02	c0.26			0.02	c0.44						
v/s Ratio Perm									0.01			c0.03
v/c Ratio	0.39	0.41			0.44	0.71			0.07			0.22
Uniform Delay, d1	52.5	10.6			53.3	14.6			41.8			42.8
Progression Factor	1.00	1.00			0.60	2.03			1.00			1.00
Incremental Delay, d2	2.7	0.6			1.9	1.0			0.6			2.2
Delay (s)	55.2	11.1			33.9	30.5			42.3			45.0
Level of Service	E	B			C	C			D			D
Approach Delay (s)		12.9				30.6			42.3			45.0
Approach LOS		B				C			D			D

Intersection Summary			
HCM 2000 Control Delay	25.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	60.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

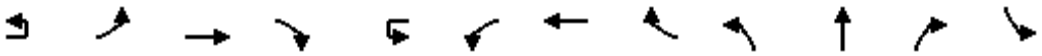
Movement	SBR
Lane Configurations	
Traffic Volume (vph)	83
Future Volume (vph)	83
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.79
Adj. Flow (vph)	105
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Heavy Vehicles (%)	3%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	36	866	36	1494	36	141
v/c Ratio	0.28	0.39	0.31	0.68	0.15	0.44
Control Delay	45.5	9.7	33.7	30.6	23.3	18.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.5	9.7	33.7	30.6	23.3	18.6
Queue Length 50th (ft)	25	128	27	533	8	23
Queue Length 95th (ft)	40	145	m27	610	21	80
Internal Link Dist (ft)		3135		2810	317	753
Turn Bay Length (ft)	350		500			
Base Capacity (vph)	154	2204	155	2196	248	323
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.39	0.23	0.68	0.15	0.44

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

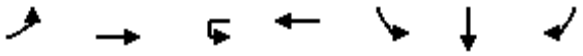


Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	23	154	611	0	4	0	1304	84	0	0	0	29
Future Volume (vph)	23	154	611	0	4	0	1304	84	0	0	0	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5		6.5		6.5					6.5
Lane Util. Factor		1.00	0.95		1.00		0.95					1.00
Frt		1.00	1.00		1.00		0.99					1.00
Flt Protected		0.95	1.00		0.95		1.00					0.95
Satd. Flow (prot)		1671	3343		1736		3441					1543
Flt Permitted		0.95	1.00		0.95		1.00					0.95
Satd. Flow (perm)		1671	3343		1736		3441					1543
Peak-hour factor, PHF	0.52	0.82	0.89	0.92	0.33	0.92	0.88	0.92	0.92	0.92	0.92	0.60
Adj. Flow (vph)	44	188	687	0	12	0	1482	91	0	0	0	48
RTOR Reduction (vph)	0	0	0	0	0	0	4	0	0	0	0	0
Lane Group Flow (vph)	0	232	687	0	12	0	1569	0	0	0	0	48
Heavy Vehicles (%)	8%	8%	8%	2%	4%	4%	4%	4%	2%	2%	2%	17%
Turn Type	Prot	Prot	NA		Prot		NA					Prot
Protected Phases	7	7	4		3		8					6
Permitted Phases												
Actuated Green, G (s)		20.5	78.9		2.1		60.5					14.5
Effective Green, g (s)		20.5	78.9		2.1		60.5					14.5
Actuated g/C Ratio		0.18	0.69		0.02		0.53					0.13
Clearance Time (s)		6.5	6.5		6.5		6.5					6.5
Vehicle Extension (s)		3.0	3.0		3.0		3.0					3.0
Lane Grp Cap (vph)		297	2293		31		1810					194
v/s Ratio Prot		c0.14	0.21		0.01		c0.46					c0.03
v/s Ratio Perm												
v/c Ratio		0.78	0.30		0.39		0.87					0.25
Uniform Delay, d1		45.1	7.1		55.8		23.7					45.3
Progression Factor		0.90	1.54		1.34		1.49					1.00
Incremental Delay, d2		17.3	0.3		6.5		5.0					3.0
Delay (s)		58.0	11.3		81.4		40.2					48.4
Level of Service		E	B		F		D					D
Approach Delay (s)			23.1				40.6			0.0		
Approach LOS			C				D			A		

Intersection Summary			
HCM 2000 Control Delay	34.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	68.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	0	43
Future Volume (vph)	0	43
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	4.0	6.5
Lane Util. Factor	1.00	1.00
Frt	0.85	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	0	1380
Flt Permitted	1.00	1.00
Satd. Flow (perm)	0	1380
Peak-hour factor, PHF	0.92	0.81
Adj. Flow (vph)	0	53
RTOR Reduction (vph)	5	42
Lane Group Flow (vph)	0	6
Heavy Vehicles (%)	17%	17%
Turn Type		Perm
Protected Phases		
Permitted Phases		6
Actuated Green, G (s)	0.0	14.5
Effective Green, g (s)	0.0	14.5
Actuated g/C Ratio	0.00	0.13
Clearance Time (s)		6.5
Vehicle Extension (s)		3.0
Lane Grp Cap (vph)	0	174
v/s Ratio Prot		
v/s Ratio Perm		0.00
v/c Ratio	0.00	0.03
Uniform Delay, d1	57.5	44.1
Progression Factor	1.00	1.00
Incremental Delay, d2	0.0	0.4
Delay (s)	57.5	44.5
Level of Service	E	D
Approach Delay (s)	47.0	
Approach LOS	D	

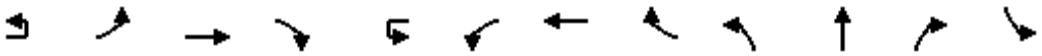
Intersection Summary



Lane Group	EBL	EBT	WBU	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	232	687	12	1573	48	5	48
v/c Ratio	0.78	0.28	0.12	0.87	0.25	0.02	0.15
Control Delay	59.0	9.5	69.0	40.8	49.1	0.0	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.0	9.5	69.0	40.8	49.1	0.0	1.1
Queue Length 50th (ft)	182	122	9	603	33	0	0
Queue Length 95th (ft)	#246	207	11	665	46	0	0
Internal Link Dist (ft)		2810		4715		721	
Turn Bay Length (ft)	350		400				10
Base Capacity (vph)	297	2444	158	1813	194	218	311
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.28	0.08	0.87	0.25	0.02	0.15

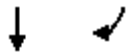
Intersection Summary

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



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	8	0	588	29	1	18	1305	0	79	0	16	0
Future Volume (vph)	8	0	588	29	1	18	1305	0	79	0	16	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5		6.5			6.5	6.5		6.5	4.0	6.5	
Lane Util. Factor	1.00		0.95			1.00	0.95		1.00	1.00	1.00	
Frt	1.00		0.99			1.00	1.00		1.00	0.85	0.85	
Flt Protected	0.95		1.00			0.95	1.00		0.95	1.00	1.00	
Satd. Flow (prot)	1656		3284			1703	3406		1752	0	1568	
Flt Permitted	0.95		1.00			0.95	1.00		0.95	1.00	1.00	
Satd. Flow (perm)	1656		3284			1703	3406		1752	0	1568	
Peak-hour factor, PHF	0.67	0.92	0.90	0.75	0.25	0.75	0.88	0.92	0.82	0.92	0.67	0.92
Adj. Flow (vph)	12	0	653	39	4	24	1483	0	96	0	24	0
RTOR Reduction (vph)	0	0	3	0	0	0	0	0	0	2	20	0
Lane Group Flow (vph)	12	0	689	0	0	28	1483	0	96	0	2	0
Heavy Vehicles (%)	9%	9%	9%	9%	6%	6%	6%	6%	3%	3%	3%	2%
Turn Type	Prot		NA		Prot	Prot	NA		Prot		Perm	
Protected Phases	7		4		3	3	8		2			
Permitted Phases											2	
Actuated Green, G (s)	2.1		79.9			5.1	82.9		10.5	0.0	10.5	
Effective Green, g (s)	2.1		79.9			5.1	82.9		10.5	0.0	10.5	
Actuated g/C Ratio	0.02		0.69			0.04	0.72		0.09	0.00	0.09	
Clearance Time (s)	6.5		6.5			6.5	6.5		6.5		6.5	
Vehicle Extension (s)	3.0		3.0			3.0	3.0		3.0		3.0	
Lane Grp Cap (vph)	30		2281			75	2455		159	0	143	
v/s Ratio Prot	0.01		c0.21			0.02	c0.44		c0.05			
v/s Ratio Perm											0.00	
v/c Ratio	0.40		0.30			0.37	0.60		0.60	0.00	0.01	
Uniform Delay, d1	55.8		6.8			53.4	7.9		50.2	57.5	47.5	
Progression Factor	0.76		0.61			1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2	8.3		0.3			3.1	1.1		15.8	0.0	0.2	
Delay (s)	50.8		4.4			56.5	9.0		66.1	57.5	47.7	
Level of Service	D		A			E	A		E	E	D	
Approach Delay (s)			5.2				9.9			62.6		
Approach LOS			A				A			E		

Intersection Summary			
HCM 2000 Control Delay	11.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	49.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



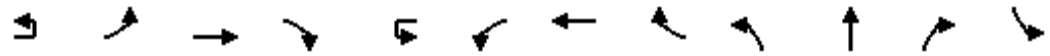
Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	0	0
Future Volume (vph)	0	0
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	0	0
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	0	0
Heavy Vehicles (%)	2%	2%
Turn Type		
Protected Phases		
Permitted Phases		
Actuated Green, G (s)		
Effective Green, g (s)		
Actuated g/C Ratio		
Clearance Time (s)		
Vehicle Extension (s)		
Lane Grp Cap (vph)		
v/s Ratio Prot		
v/s Ratio Perm		
v/c Ratio		
Uniform Delay, d1		
Progression Factor		
Incremental Delay, d2		
Delay (s)		
Level of Service		
Approach Delay (s)	0.0	
Approach LOS	A	

Intersection Summary

Lane Group	EBU	EBT	WBL	WBT	NBL	NBT	NBR
Lane Group Flow (vph)	12	692	28	1483	96	2	22
v/c Ratio	0.12	0.29	0.26	0.57	0.60	0.01	0.08
Control Delay	40.0	4.3	62.9	4.8	66.9	0.0	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.0	4.3	62.9	4.8	66.9	0.0	0.5
Queue Length 50th (ft)	9	97	22	65	70	0	0
Queue Length 95th (ft)	19	117	m38	168	115	0	0
Internal Link Dist (ft)		4715		2272		440	
Turn Bay Length (ft)	350		350				10
Base Capacity (vph)	151	2360	155	2608	159	218	285
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.29	0.18	0.57	0.60	0.01	0.08

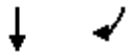
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	2	24	593	6	4	4	1275	19	6	6	4	23
Future Volume (vph)	2	24	593	6	4	4	1275	19	6	6	4	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5			6.5	6.5			6.5		
Lane Util. Factor		1.00	0.95			1.00	0.95			1.00		
Frt		1.00	1.00			1.00	1.00			0.97		
Flt Protected		0.95	1.00			0.95	1.00			0.98		
Satd. Flow (prot)		1656	3305			1736	3462			1777		
Flt Permitted		0.95	1.00			0.95	1.00			0.82		
Satd. Flow (perm)		1656	3305			1736	3462			1495		
Peak-hour factor, PHF	0.50	0.86	0.87	0.63	0.33	1.00	0.89	0.75	0.38	0.38	0.50	0.82
Adj. Flow (vph)	4	28	682	10	12	4	1433	25	16	16	8	28
RTOR Reduction (vph)	0	0	1	0	0	0	1	0	0	7	0	0
Lane Group Flow (vph)	0	32	691	0	0	16	1457	0	0	33	0	0
Heavy Vehicles (%)	9%	9%	9%	9%	4%	4%	4%	4%	2%	2%	2%	11%
Turn Type	Prot	Prot	NA		Prot	Prot	NA		Perm	NA		Perm
Protected Phases	7	7	4		3	3	8			2		
Permitted Phases									2			6
Actuated Green, G (s)		7.6	81.9			3.1	77.4			10.5		
Effective Green, g (s)		7.6	81.9			3.1	77.4			10.5		
Actuated g/C Ratio		0.07	0.71			0.03	0.67			0.09		
Clearance Time (s)		6.5	6.5			6.5	6.5			6.5		
Vehicle Extension (s)		3.0	3.0			3.0	3.0			3.0		
Lane Grp Cap (vph)		109	2353			46	2330			136		
v/s Ratio Prot		0.02	c0.21			0.01	c0.42					
v/s Ratio Perm										0.02		
v/c Ratio		0.29	0.29			0.35	0.63			0.24		
Uniform Delay, d1		51.1	6.0			55.0	10.6			48.5		
Progression Factor		1.30	2.44			1.00	1.00			1.00		
Incremental Delay, d2		1.5	0.3			4.5	1.3			4.1		
Delay (s)		67.7	15.0			59.5	11.9			52.7		
Level of Service		E	B			E	B			D		
Approach Delay (s)			17.3				12.4			52.7		
Approach LOS			B				B			D		

Intersection Summary			
HCM 2000 Control Delay	16.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	51.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

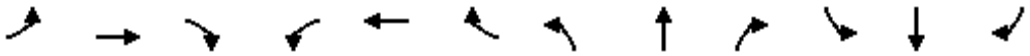


Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	9	41
Future Volume (vph)	9	41
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	6.5	
Lane Util. Factor	1.00	
Frt	0.93	
Flt Protected	0.98	
Satd. Flow (prot)	1568	
Flt Permitted	0.88	
Satd. Flow (perm)	1404	
Peak-hour factor, PHF	0.56	0.88
Adj. Flow (vph)	16	47
RTOR Reduction (vph)	34	0
Lane Group Flow (vph)	57	0
Heavy Vehicles (%)	11%	11%
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	10.5	
Effective Green, g (s)	10.5	
Actuated g/C Ratio	0.09	
Clearance Time (s)	6.5	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	128	
v/s Ratio Prot		
v/s Ratio Perm	c0.04	
v/c Ratio	0.45	
Uniform Delay, d1	49.5	
Progression Factor	1.00	
Incremental Delay, d2	10.9	
Delay (s)	60.4	
Level of Service	E	
Approach Delay (s)	60.4	
Approach LOS	E	

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	32	692	16	1458	40	91
v/c Ratio	0.26	0.28	0.16	0.60	0.28	0.57
Control Delay	68.7	13.7	54.4	11.0	46.4	45.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.7	13.7	54.4	11.0	46.4	45.3
Queue Length 50th (ft)	25	127	12	317	22	38
Queue Length 95th (ft)	57	194	35	379	20	45
Internal Link Dist (ft)		2272		1581	712	348
Turn Bay Length (ft)	450		425			
Base Capacity (vph)	151	2465	158	2447	143	161
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.28	0.10	0.60	0.28	0.57

Intersection Summary

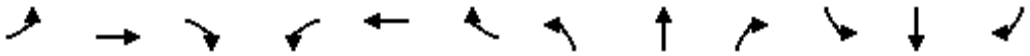


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	23	0	0	0	165	40	0	39	0
Future Volume (Veh/h)	0	0	0	23	0	0	0	165	40	0	39	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.64	0.92	0.92	0.92	0.94	0.67	0.92	0.75	0.92
Hourly flow rate (vph)	0	0	0	36	0	0	0	176	60	0	52	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								801				
pX, platoon unblocked												
vC, conflicting volume	258	288	52	258	258	206	52			236		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	258	288	52	258	258	206	52			236		
tC, single (s)	7.1	6.5	6.2	7.6	7.0	6.7	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	4.0	4.5	3.8	2.2			2.2		
p0 queue free %	100	100	100	94	100	100	100			100		
cM capacity (veh/h)	695	622	1016	607	572	727	1548			1314		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	0	36	236	52
Volume Left	0	36	0	0
Volume Right	0	0	60	0
cSH	1700	607	1548	1314
Volume to Capacity	0.00	0.06	0.00	0.00
Queue Length 95th (ft)	0	5	0	0
Control Delay (s)	0.0	11.3	0.0	0.0
Lane LOS	A	B		
Approach Delay (s)	0.0	11.3	0.0	0.0
Approach LOS	A	B		

Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	21.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Capacity Analysis
Existing PM Peak Hour

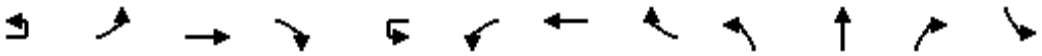


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	111	1542	15	11	1000	23	13	15	1	32	16	108
Future Volume (vph)	111	1542	15	11	1000	23	13	15	1	32	16	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.5		4.5	6.5			5.5			5.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	1.00		1.00	0.99			0.99			0.92	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.99	
Satd. Flow (prot)	1752	3496		1736	3450			1673			1667	
Flt Permitted	0.95	1.00		0.95	1.00			0.84			0.91	
Satd. Flow (perm)	1752	3496		1736	3450			1430			1528	
Peak-hour factor, PHF	0.84	0.91	0.50	0.39	0.92	0.50	0.65	0.63	0.25	0.62	0.67	0.84
Adj. Flow (vph)	132	1695	30	28	1087	46	20	24	4	52	24	129
RTOR Reduction (vph)	0	1	0	0	3	0	0	3	0	0	53	0
Lane Group Flow (vph)	132	1724	0	28	1130	0	0	45	0	0	152	0
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	10%	10%	10%	3%	3%	3%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	12.2	69.9		5.1	62.8			23.5			23.5	
Effective Green, g (s)	12.2	69.9		5.1	62.8			23.5			23.5	
Actuated g/C Ratio	0.11	0.61		0.04	0.55			0.20			0.20	
Clearance Time (s)	4.5	6.5		4.5	6.5			5.5			5.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	185	2124		76	1884			292			312	
v/s Ratio Prot	c0.08	c0.49		0.02	0.33							
v/s Ratio Perm								0.03			c0.10	
v/c Ratio	0.71	0.81		0.37	0.60			0.15			0.49	
Uniform Delay, d1	49.7	17.5		53.4	17.6			37.6			40.4	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	12.3	3.5		3.0	1.4			1.1			5.3	
Delay (s)	62.0	21.0		56.4	19.0			38.7			45.8	
Level of Service	E	C		E	B			D			D	
Approach Delay (s)		23.9			19.9			38.7			45.8	
Approach LOS		C			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	24.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	70.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

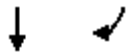
Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	132	1725	28	1133	48	205
v/c Ratio	0.71	0.79	0.25	0.60	0.16	0.56
Control Delay	70.2	20.8	55.9	22.3	36.9	34.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.2	20.8	55.9	22.3	36.9	34.0
Queue Length 50th (ft)	95	513	22	246	27	91
Queue Length 95th (ft)	150	662	24	238	42	108
Internal Link Dist (ft)		611		3135	424	763
Turn Bay Length (ft)	200		150			
Base Capacity (vph)	205	2180	203	1885	295	365
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.79	0.14	0.60	0.16	0.56

Intersection Summary



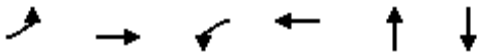
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	1	67	1501	6	15	9	970	24	3	22	30	17
Future Volume (vph)	1	67	1501	6	15	9	970	24	3	22	30	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5			6.5	6.5			6.5		
Lane Util. Factor		1.00	0.95			1.00	0.95			1.00		
Frt		1.00	1.00			1.00	1.00			0.93		
Flt Protected		0.95	1.00			0.95	1.00			0.99		
Satd. Flow (prot)		1770	3535			1736	3455			1731		
Flt Permitted		0.95	1.00			0.95	1.00			0.96		
Satd. Flow (perm)		1770	3535			1736	3455			1675		
Peak-hour factor, PHF	0.25	0.76	0.91	0.42	0.63	0.75	0.93	0.71	0.38	0.69	0.79	0.71
Adj. Flow (vph)	4	88	1649	14	24	12	1043	34	8	32	38	24
RTOR Reduction (vph)	0	0	0	0	0	0	2	0	0	30	0	0
Lane Group Flow (vph)	0	92	1663	0	0	36	1075	0	0	48	0	0
Heavy Vehicles (%)	2%	2%	2%	2%	4%	4%	4%	4%	2%	2%	2%	2%
Turn Type	Prot	Prot	NA		Prot	Prot	NA		Perm	NA		Perm
Protected Phases	7	7	4		3	3	8			2		
Permitted Phases									2			6
Actuated Green, G (s)		13.1	72.6			5.4	64.9			17.5		
Effective Green, g (s)		13.1	72.6			5.4	64.9			17.5		
Actuated g/C Ratio		0.11	0.63			0.05	0.56			0.15		
Clearance Time (s)		6.5	6.5			6.5	6.5			6.5		
Vehicle Extension (s)		3.0	3.0			3.0	3.0			3.0		
Lane Grp Cap (vph)		201	2231			81	1949			254		
v/s Ratio Prot		0.05	c0.47			0.02	c0.31					
v/s Ratio Perm										0.03		
v/c Ratio		0.46	0.75			0.44	0.55			0.19		
Uniform Delay, d1		47.6	14.8			53.3	15.8			42.6		
Progression Factor		1.02	1.24			1.00	1.00			1.00		
Incremental Delay, d2		1.0	1.4			3.9	1.1			1.7		
Delay (s)		49.7	19.8			57.2	17.0			44.2		
Level of Service		D	B			E	B			D		
Approach Delay (s)			21.3				18.3			44.2		
Approach LOS			C				B			D		

Intersection Summary			
HCM 2000 Control Delay	21.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	73.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	14	60
Future Volume (vph)	14	60
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	6.5	
Lane Util. Factor	1.00	
Frt	0.92	
Flt Protected	0.99	
Satd. Flow (prot)	1691	
Flt Permitted	0.92	
Satd. Flow (perm)	1576	
Peak-hour factor, PHF	0.58	0.77
Adj. Flow (vph)	24	78
RTOR Reduction (vph)	51	0
Lane Group Flow (vph)	75	0
Heavy Vehicles (%)	2%	2%
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	17.5	
Effective Green, g (s)	17.5	
Actuated g/C Ratio	0.15	
Clearance Time (s)	6.5	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	239	
v/s Ratio Prot		
v/s Ratio Perm	c0.05	
v/c Ratio	0.31	
Uniform Delay, d1	43.4	
Progression Factor	1.00	
Incremental Delay, d2	3.4	
Delay (s)	46.8	
Level of Service	D	
Approach Delay (s)	46.8	
Approach LOS	D	

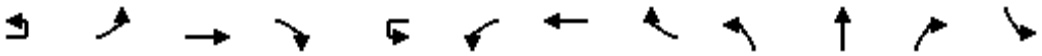
Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	92	1663	36	1077	78	126
v/c Ratio	0.57	0.72	0.31	0.53	0.27	0.43
Control Delay	60.5	19.6	54.9	13.2	28.5	29.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.5	19.6	54.9	13.2	28.5	29.0
Queue Length 50th (ft)	58	363	27	174	28	44
Queue Length 95th (ft)	m80	478	50	250	50	49
Internal Link Dist (ft)		3135		2810	317	753
Turn Bay Length (ft)	350		500			
Base Capacity (vph)	161	2311	158	2029	284	290
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.72	0.23	0.53	0.27	0.43

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

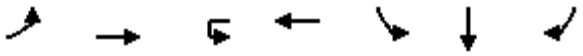


Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	29	24	1472	0	13	0	822	13	0	0	0	90
Future Volume (vph)	29	24	1472	0	13	0	822	13	0	0	0	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5		6.5		6.5					6.5
Lane Util. Factor		1.00	0.95		1.00		0.95					1.00
Frt		1.00	1.00		1.00		1.00					1.00
Flt Protected		0.95	1.00		0.95		1.00					0.95
Satd. Flow (prot)		1770	3539		1719		3428					1770
Flt Permitted		0.95	1.00		0.95		1.00					0.95
Satd. Flow (perm)		1770	3539		1719		3428					1770
Peak-hour factor, PHF	0.60	0.86	0.92	0.92	0.65	0.25	0.95	0.75	0.92	0.92	0.92	0.75
Adj. Flow (vph)	48	28	1600	0	20	0	865	17	0	0	0	120
RTOR Reduction (vph)	0	0	0	0	0	0	1	0	0	0	0	0
Lane Group Flow (vph)	0	76	1600	0	20	0	881	0	0	0	0	120
Heavy Vehicles (%)	2%	2%	2%	2%	5%	5%	5%	5%	2%	2%	2%	2%
Turn Type	Prot	Prot	NA		Prot		NA					Prot
Protected Phases	7	7	4		3		8					6
Permitted Phases												
Actuated Green, G (s)		8.0	76.8		4.2		73.0					14.5
Effective Green, g (s)		8.0	76.8		4.2		73.0					14.5
Actuated g/C Ratio		0.07	0.67		0.04		0.63					0.13
Clearance Time (s)		6.5	6.5		6.5		6.5					6.5
Vehicle Extension (s)		3.0	3.0		3.0		3.0					3.0
Lane Grp Cap (vph)		123	2363		62		2176					223
v/s Ratio Prot		0.04	c0.45		0.01		c0.26					c0.07
v/s Ratio Perm												
v/c Ratio		0.62	0.68		0.32		0.40					0.54
Uniform Delay, d1		52.0	11.6		54.0		10.3					47.1
Progression Factor		0.67	1.75		1.00		1.00					1.00
Incremental Delay, d2		6.3	1.1		3.0		0.6					9.0
Delay (s)		41.2	21.3		57.0		10.9					56.1
Level of Service		D	C		E		B					E
Approach Delay (s)			22.2				11.9			0.0		
Approach LOS			C				B			A		

Intersection Summary			
HCM 2000 Control Delay	22.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	57.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	0	152
Future Volume (vph)	0	152
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	4.0	6.5
Lane Util. Factor	1.00	1.00
Frt	0.85	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	0	1583
Flt Permitted	1.00	1.00
Satd. Flow (perm)	0	1583
Peak-hour factor, PHF	0.92	0.83
Adj. Flow (vph)	0	183
RTOR Reduction (vph)	18	137
Lane Group Flow (vph)	0	28
Heavy Vehicles (%)	2%	2%
Turn Type		Perm
Protected Phases		
Permitted Phases		6
Actuated Green, G (s)	0.0	14.5
Effective Green, g (s)	0.0	14.5
Actuated g/C Ratio	0.00	0.13
Clearance Time (s)		6.5
Vehicle Extension (s)		3.0
Lane Grp Cap (vph)	0	199
v/s Ratio Prot		
v/s Ratio Perm		0.02
v/c Ratio	0.00	0.14
Uniform Delay, d1	57.5	44.7
Progression Factor	1.00	1.00
Incremental Delay, d2	0.0	1.5
Delay (s)	57.5	46.2
Level of Service	E	D
Approach Delay (s)	50.8	
Approach LOS	D	

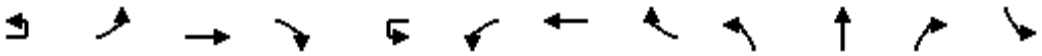
Intersection Summary



Lane Group	EBL	EBT	WBU	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	76	1600	20	882	120	18	165
v/c Ratio	0.54	0.64	0.17	0.40	0.54	0.08	0.49
Control Delay	43.8	20.2	65.8	19.7	56.8	0.0	13.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.8	20.2	65.8	19.7	56.8	0.0	13.7
Queue Length 50th (ft)	51	321	0	254	85	0	5
Queue Length 95th (ft)	m75	568	29	253	120	0	54
Internal Link Dist (ft)		2810		4715		721	
Turn Bay Length (ft)	350		400				10
Base Capacity (vph)	161	2483	156	2216	223	218	336
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.64	0.13	0.40	0.54	0.08	0.49

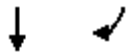
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	12	0	1425	113	2	37	781	0	55	0	58	0
Future Volume (vph)	12	0	1425	113	2	37	781	0	55	0	58	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5		6.5			6.5	6.5		6.5	4.0	6.5	
Lane Util. Factor	1.00		0.95			1.00	0.95		1.00	1.00	1.00	
Frt	1.00		0.99			1.00	1.00		1.00	0.85	0.85	
Flt Protected	0.95		1.00			0.95	1.00		0.95	1.00	1.00	
Satd. Flow (prot)	1770		3495			1736	3471		1752	0	1568	
Flt Permitted	0.95		1.00			0.95	1.00		0.95	1.00	1.00	
Satd. Flow (perm)	1770		3495			1736	3471		1752	0	1568	
Peak-hour factor, PHF	0.60	0.92	0.93	0.82	0.50	0.84	0.98	0.92	0.86	0.92	0.81	0.92
Adj. Flow (vph)	20	0	1532	138	4	44	797	0	64	0	72	0
RTOR Reduction (vph)	0	0	5	0	0	0	0	0	0	7	59	0
Lane Group Flow (vph)	20	0	1665	0	0	48	797	0	64	0	6	0
Heavy Vehicles (%)	2%	2%	2%	2%	4%	4%	4%	4%	3%	3%	3%	2%
Turn Type	Prot		NA		Prot	Prot	NA		Prot		Perm	
Protected Phases	7		4		3	3	8		2			
Permitted Phases											2	
Actuated Green, G (s)	4.2		77.8			7.2	80.8		10.5	0.0	10.5	
Effective Green, g (s)	4.2		77.8			7.2	80.8		10.5	0.0	10.5	
Actuated g/C Ratio	0.04		0.68			0.06	0.70		0.09	0.00	0.09	
Clearance Time (s)	6.5		6.5			6.5	6.5		6.5		6.5	
Vehicle Extension (s)	3.0		3.0			3.0	3.0		3.0		3.0	
Lane Grp Cap (vph)	64		2364			108	2438		159	0	143	
v/s Ratio Prot	0.01		c0.48			0.03	c0.23		c0.04			
v/s Ratio Perm											0.00	
v/c Ratio	0.31		0.70			0.44	0.33		0.40	0.00	0.04	
Uniform Delay, d1	54.0		11.5			52.0	6.6		49.3	57.5	47.7	
Progression Factor	0.93		0.93			1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2	2.2		1.4			2.9	0.4		7.4	0.0	0.5	
Delay (s)	52.1		12.1			54.9	7.0		56.7	57.5	48.2	
Level of Service	D		B			D	A		E	E	D	
Approach Delay (s)			12.6				9.7			52.7		
Approach LOS			B				A			D		

Intersection Summary			
HCM 2000 Control Delay	13.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	58.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	0	0
Future Volume (vph)	0	0
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	0	0
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	0	0
Heavy Vehicles (%)	2%	2%
Turn Type		
Protected Phases		
Permitted Phases		
Actuated Green, G (s)		
Effective Green, g (s)		
Actuated g/C Ratio		
Clearance Time (s)		
Vehicle Extension (s)		
Lane Grp Cap (vph)		
v/s Ratio Prot		
v/s Ratio Perm		
v/c Ratio		
Uniform Delay, d1		
Progression Factor		
Incremental Delay, d2		
Delay (s)		
Level of Service		
Approach Delay (s)	0.0	
Approach LOS	A	

Intersection Summary

Lane Group	EBU	EBT	WBL	WBT	NBL	NBT	NBR
Lane Group Flow (vph)	20	1670	48	797	64	7	65
v/c Ratio	0.17	0.69	0.38	0.31	0.40	0.03	0.23
Control Delay	48.0	12.3	71.6	4.9	57.4	0.0	1.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.0	12.3	71.6	4.9	57.4	0.0	1.8
Queue Length 50th (ft)	13	342	38	35	45	0	0
Queue Length 95th (ft)	m20	392	m74	97	87	0	0
Internal Link Dist (ft)		4715		2272		440	
Turn Bay Length (ft)	350		350				10
Base Capacity (vph)	161	2409	158	2556	159	218	285
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.69	0.30	0.31	0.40	0.03	0.23

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	40	1444	16	3	4	779	30	3	20	14	27	14
Future Volume (vph)	40	1444	16	3	4	779	30	3	20	14	27	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5			6.5	6.5			6.5			6.5
Lane Util. Factor	1.00	0.95			1.00	0.95			1.00			1.00
Frt	1.00	1.00			1.00	0.99			0.95			0.92
Flt Protected	0.95	1.00			0.95	1.00			0.99			0.98
Satd. Flow (prot)	1770	3534			1736	3446			1733			1664
Flt Permitted	0.95	1.00			0.95	1.00			0.92			0.90
Satd. Flow (perm)	1770	3534			1736	3446			1597			1523
Peak-hour factor, PHF	0.67	0.90	1.00	0.38	0.33	0.94	0.72	0.38	0.71	0.58	0.75	0.88
Adj. Flow (vph)	60	1604	16	8	12	829	42	8	28	24	36	16
RTOR Reduction (vph)	0	1	0	0	0	3	0	0	21	0	0	40
Lane Group Flow (vph)	60	1619	0	0	20	868	0	0	39	0	0	78
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%	4%	3%	3%	3%	4%	4%
Turn Type	Prot	NA		Prot	Prot	NA		Perm	NA		Perm	NA
Protected Phases	7	4		3	3	8			2			6
Permitted Phases								2			6	
Actuated Green, G (s)	11.0	81.7			3.3	74.0			10.5			10.5
Effective Green, g (s)	11.0	81.7			3.3	74.0			10.5			10.5
Actuated g/C Ratio	0.10	0.71			0.03	0.64			0.09			0.09
Clearance Time (s)	6.5	6.5			6.5	6.5			6.5			6.5
Vehicle Extension (s)	3.0	3.0			3.0	3.0			3.0			3.0
Lane Grp Cap (vph)	169	2510			49	2217			145			139
v/s Ratio Prot	0.03	c0.46			0.01	c0.25						
v/s Ratio Perm									0.02			c0.05
v/c Ratio	0.36	0.65			0.41	0.39			0.27			0.56
Uniform Delay, d1	48.7	8.9			54.9	9.8			48.7			50.0
Progression Factor	1.08	1.52			1.00	1.00			1.00			1.00
Incremental Delay, d2	1.0	1.0			5.5	0.5			4.5			15.4
Delay (s)	53.7	14.5			60.4	10.3			53.2			65.4
Level of Service	D	B			E	B			D			E
Approach Delay (s)		15.9				11.4			53.2			65.4
Approach LOS		B				B			D			E

Intersection Summary			
HCM 2000 Control Delay	17.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	62.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

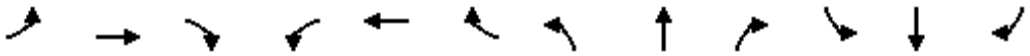
Movement	SBR
Lane Configurations	
Traffic Volume (vph)	38
Future Volume (vph)	38
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.58
Adj. Flow (vph)	66
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Heavy Vehicles (%)	4%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	60	1620	20	871	60	118
v/c Ratio	0.41	0.62	0.19	0.37	0.36	0.66
Control Delay	60.4	13.3	55.0	9.1	39.8	50.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.4	13.3	55.0	9.1	39.8	50.1
Queue Length 50th (ft)	47	295	14	145	26	53
Queue Length 95th (ft)	m65	324	14	183	50	#127
Internal Link Dist (ft)		2272		1581	712	348
Turn Bay Length (ft)	450		425			
Base Capacity (vph)	161	2632	158	2338	166	179
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.62	0.13	0.37	0.36	0.66

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

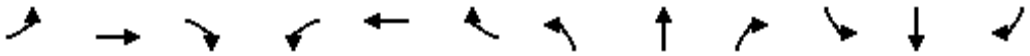


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	1	88	0	2	4	15	14	2	123	0
Future Volume (Veh/h)	0	0	1	88	0	2	4	15	14	2	123	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.25	0.71	0.92	0.50	0.50	0.63	0.70	0.25	0.65	0.92
Hourly flow rate (vph)	0	0	4	124	0	4	8	24	20	8	189	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								801				
pX, platoon unblocked												
vC, conflicting volume	259	265	189	259	255	34	189			44		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	259	265	189	259	255	34	189			44		
tC, single (s)	8.1	7.5	7.2	7.1	6.5	6.2	4.2			4.1		
tC, 2 stage (s)												
tF (s)	4.4	4.9	4.2	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	100	100	99	82	100	100	99			99		
cM capacity (veh/h)	526	498	654	684	642	1039	1327			1564		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	4	128	52	197
Volume Left	0	124	8	8
Volume Right	4	4	20	0
cSH	654	691	1327	1564
Volume to Capacity	0.01	0.19	0.01	0.01
Queue Length 95th (ft)	0	17	0	0
Control Delay (s)	10.5	11.4	1.2	0.3
Lane LOS	B	B	A	A
Approach Delay (s)	10.5	11.4	1.2	0.3
Approach LOS	B	B		

Intersection Summary				
Average Delay	4.3			
Intersection Capacity Utilization	25.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Capacity Analysis
Background AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	109	788	1	9	1473	27	24	11	3	9	8	89
Future Volume (vph)	109	788	1	9	1473	27	24	11	3	9	8	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.5		4.5	6.5			5.5			5.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	1.00		1.00	1.00			0.98			0.90	
Flt Protected	0.95	1.00		0.95	1.00			0.97			0.99	
Satd. Flow (prot)	1687	3372		1719	3425			1802			1512	
Flt Permitted	0.95	1.00		0.95	1.00			0.83			0.97	
Satd. Flow (perm)	1687	3372		1719	3425			1534			1470	
Peak-hour factor, PHF	0.81	0.89	0.25	0.75	0.90	0.63	0.82	0.63	0.50	0.56	0.50	0.85
Adj. Flow (vph)	135	885	4	12	1637	43	29	17	6	16	16	105
RTOR Reduction (vph)	0	0	0	0	1	0	0	4	0	0	84	0
Lane Group Flow (vph)	135	889	0	12	1679	0	0	48	0	0	53	0
Heavy Vehicles (%)	7%	7%	7%	5%	5%	5%	1%	1%	1%	12%	12%	12%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	12.4	73.4		1.6	62.6			23.5			23.5	
Effective Green, g (s)	12.4	73.4		1.6	62.6			23.5			23.5	
Actuated g/C Ratio	0.11	0.64		0.01	0.54			0.20			0.20	
Clearance Time (s)	4.5	6.5		4.5	6.5			5.5			5.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	181	2152		23	1864			313			300	
v/s Ratio Prot	c0.08	0.26		0.01	c0.49							
v/s Ratio Perm								0.03			c0.04	
v/c Ratio	0.75	0.41		0.52	0.90			0.15			0.18	
Uniform Delay, d1	49.8	10.2		56.3	23.4			37.6			37.8	
Progression Factor	1.00	1.00		1.03	0.61			1.00			1.00	
Incremental Delay, d2	15.3	0.6		14.6	5.6			1.0			1.3	
Delay (s)	65.1	10.8		72.7	20.0			38.6			39.1	
Level of Service	E	B		E	B			D			D	
Approach Delay (s)		18.0			20.4			38.6			39.1	
Approach LOS		B			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	20.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	70.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	135	889	12	1680	52	137
v/c Ratio	0.74	0.39	0.12	0.90	0.16	0.36
Control Delay	73.5	9.7	54.9	21.0	36.4	14.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.5	9.7	54.9	21.0	36.4	14.7
Queue Length 50th (ft)	97	130	10	142	29	19
Queue Length 95th (ft)	147	228	m14	#264	43	11
Internal Link Dist (ft)		611		3135	424	763
Turn Bay Length (ft)	200		150			
Base Capacity (vph)	198	2257	201	1864	317	384
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.39	0.06	0.90	0.16	0.36

Intersection Summary

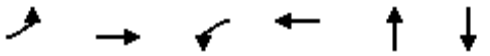
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	27	773	0	13	8	1420	14	3	5	19	27	7
Future Volume (vph)	27	773	0	13	8	1420	14	3	5	19	27	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5			6.5	6.5			6.5			6.5
Lane Util. Factor	1.00	0.95			1.00	0.95			1.00			1.00
Frt	1.00	1.00			1.00	1.00			0.91			0.90
Flt Protected	0.95	1.00			0.95	1.00			0.99			0.99
Satd. Flow (prot)	1687	3374			1703	3398			1547			1642
Flt Permitted	0.95	1.00			0.95	1.00			0.96			0.93
Satd. Flow (perm)	1687	3374			1703	3398			1500			1537
Peak-hour factor, PHF	0.72	0.85	0.25	0.60	0.50	0.92	0.55	0.75	0.63	0.75	0.93	0.88
Adj. Flow (vph)	38	909	0	22	16	1543	25	4	8	25	29	8
RTOR Reduction (vph)	0	0	0	0	0	1	0	0	21	0	0	93
Lane Group Flow (vph)	38	909	0	0	38	1567	0	0	16	0	0	54
Heavy Vehicles (%)	7%	7%	7%	6%	6%	6%	6%	11%	11%	11%	3%	3%
Turn Type	Prot	NA		Prot	Prot	NA		Perm	NA		Perm	NA
Protected Phases	7	4		3	3	8			2			6
Permitted Phases								2			6	
Actuated Green, G (s)	6.3	72.5			5.5	71.7			17.5			17.5
Effective Green, g (s)	6.3	72.5			5.5	71.7			17.5			17.5
Actuated g/C Ratio	0.05	0.63			0.05	0.62			0.15			0.15
Clearance Time (s)	6.5	6.5			6.5	6.5			6.5			6.5
Vehicle Extension (s)	3.0	3.0			3.0	3.0			3.0			3.0
Lane Grp Cap (vph)	92	2127			81	2118			228			233
v/s Ratio Prot	0.02	c0.27			0.02	c0.46						
v/s Ratio Perm									0.01			c0.03
v/c Ratio	0.41	0.43			0.47	0.74			0.07			0.23
Uniform Delay, d1	52.6	10.7			53.3	15.1			41.8			42.8
Progression Factor	0.81	0.87			0.58	1.98			1.00			1.00
Incremental Delay, d2	2.8	0.6			1.9	1.1			0.6			2.3
Delay (s)	45.4	10.0			33.0	31.1			42.4			45.1
Level of Service	D	A			C	C			D			D
Approach Delay (s)		11.4				31.1			42.4			45.1
Approach LOS		B				C			D			D

Intersection Summary			
HCM 2000 Control Delay	25.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	63.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	87
Future Volume (vph)	87
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.79
Adj. Flow (vph)	110
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Heavy Vehicles (%)	3%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

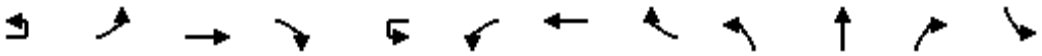
Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	38	909	38	1568	37	147
v/c Ratio	0.30	0.41	0.32	0.71	0.15	0.45
Control Delay	45.7	9.8	32.5	31.1	23.0	18.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.7	9.8	32.5	31.1	23.0	18.6
Queue Length 50th (ft)	27	135	28	565	8	24
Queue Length 95th (ft)	40	151	m27	m634	22	83
Internal Link Dist (ft)		3135		2810	317	753
Turn Bay Length (ft)	350		500			
Base Capacity (vph)	154	2202	155	2196	249	327
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.41	0.25	0.71	0.15	0.45

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

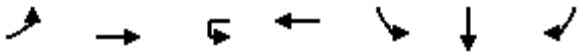


Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	24	162	642	0	4	0	1369	88	0	0	0	30
Future Volume (vph)	24	162	642	0	4	0	1369	88	0	0	0	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5		6.5		6.5					6.5
Lane Util. Factor		1.00	0.95		1.00		0.95					1.00
Frt		1.00	1.00		1.00		0.99					1.00
Flt Protected		0.95	1.00		0.95		1.00					0.95
Satd. Flow (prot)		1671	3343		1736		3441					1543
Flt Permitted		0.95	1.00		0.95		1.00					0.95
Satd. Flow (perm)		1671	3343		1736		3441					1543
Peak-hour factor, PHF	0.52	0.82	0.89	0.92	0.33	0.92	0.88	0.92	0.92	0.92	0.92	0.60
Adj. Flow (vph)	46	198	721	0	12	0	1556	96	0	0	0	50
RTOR Reduction (vph)	0	0	0	0	0	0	4	0	0	0	0	0
Lane Group Flow (vph)	0	244	721	0	12	0	1648	0	0	0	0	50
Heavy Vehicles (%)	8%	8%	8%	2%	4%	4%	4%	4%	2%	2%	2%	17%
Turn Type	Prot	Prot	NA		Prot		NA					Prot
Protected Phases	7	7	4		3		8					6
Permitted Phases												
Actuated Green, G (s)		20.5	78.9		2.1		60.5					14.5
Effective Green, g (s)		20.5	78.9		2.1		60.5					14.5
Actuated g/C Ratio		0.18	0.69		0.02		0.53					0.13
Clearance Time (s)		6.5	6.5		6.5		6.5					6.5
Vehicle Extension (s)		3.0	3.0		3.0		3.0					3.0
Lane Grp Cap (vph)		297	2293		31		1810					194
v/s Ratio Prot		c0.15	0.22		0.01		c0.48					c0.03
v/s Ratio Perm												
v/c Ratio		0.82	0.31		0.39		0.91					0.26
Uniform Delay, d1		45.5	7.2		55.8		24.8					45.4
Progression Factor		0.90	1.56		1.35		1.47					1.00
Incremental Delay, d2		20.7	0.3		6.4		7.0					3.2
Delay (s)		61.6	11.6		81.6		43.5					48.6
Level of Service		E	B		F		D					D
Approach Delay (s)			24.2				43.8			0.0		
Approach LOS			C				D			A		

Intersection Summary			
HCM 2000 Control Delay	37.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	71.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	0	45
Future Volume (vph)	0	45
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	4.0	6.5
Lane Util. Factor	1.00	1.00
Frt	0.85	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	0	1380
Flt Permitted	1.00	1.00
Satd. Flow (perm)	0	1380
Peak-hour factor, PHF	0.92	0.81
Adj. Flow (vph)	0	56
RTOR Reduction (vph)	6	44
Lane Group Flow (vph)	0	6
Heavy Vehicles (%)	17%	17%
Turn Type		Perm
Protected Phases		
Permitted Phases		6
Actuated Green, G (s)	0.0	14.5
Effective Green, g (s)	0.0	14.5
Actuated g/C Ratio	0.00	0.13
Clearance Time (s)		6.5
Vehicle Extension (s)		3.0
Lane Grp Cap (vph)	0	174
v/s Ratio Prot		
v/s Ratio Perm		0.00
v/c Ratio	0.00	0.04
Uniform Delay, d1	57.5	44.1
Progression Factor	1.00	1.00
Incremental Delay, d2	0.0	0.4
Delay (s)	57.5	44.5
Level of Service	E	D
Approach Delay (s)	47.2	
Approach LOS	D	

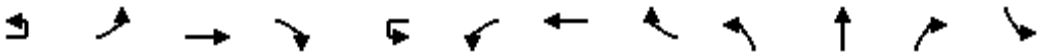
Intersection Summary



Lane Group	EBL	EBT	WBU	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	244	721	12	1652	50	6	50
v/c Ratio	0.82	0.30	0.12	0.91	0.26	0.03	0.16
Control Delay	62.7	9.8	69.2	43.8	49.3	0.0	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.7	9.8	69.2	43.8	49.3	0.0	1.1
Queue Length 50th (ft)	191	131	9	642	34	0	0
Queue Length 95th (ft)	#266	216	11	703	47	0	0
Internal Link Dist (ft)		2810		4715		721	
Turn Bay Length (ft)	350		400				10
Base Capacity (vph)	297	2444	158	1813	194	218	311
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.30	0.08	0.91	0.26	0.03	0.16

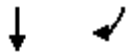
Intersection Summary

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



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	8	0	617	30	1	19	1370	0	83	0	17	0
Future Volume (vph)	8	0	617	30	1	19	1370	0	83	0	17	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5		6.5			6.5	6.5		6.5	4.0	6.5	
Lane Util. Factor	1.00		0.95			1.00	0.95		1.00	1.00	1.00	
Frt	1.00		0.99			1.00	1.00		1.00	0.85	0.85	
Flt Protected	0.95		1.00			0.95	1.00		0.95	1.00	1.00	
Satd. Flow (prot)	1656		3285			1703	3406		1752	0	1568	
Flt Permitted	0.95		1.00			0.95	1.00		0.95	1.00	1.00	
Satd. Flow (perm)	1656		3285			1703	3406		1752	0	1568	
Peak-hour factor, PHF	0.67	0.92	0.90	0.75	0.25	0.75	0.88	0.92	0.82	0.92	0.67	0.92
Adj. Flow (vph)	12	0	686	40	4	25	1557	0	101	0	25	0
RTOR Reduction (vph)	0	0	3	0	0	0	0	0	0	3	20	0
Lane Group Flow (vph)	12	0	723	0	0	29	1557	0	101	0	2	0
Heavy Vehicles (%)	9%	9%	9%	9%	6%	6%	6%	6%	3%	3%	3%	2%
Turn Type	Prot		NA		Prot	Prot	NA		Prot		Perm	
Protected Phases	7		4		3	3	8		2			
Permitted Phases											2	
Actuated Green, G (s)	2.1		79.9			5.1	82.9		10.5	0.0	10.5	
Effective Green, g (s)	2.1		79.9			5.1	82.9		10.5	0.0	10.5	
Actuated g/C Ratio	0.02		0.69			0.04	0.72		0.09	0.00	0.09	
Clearance Time (s)	6.5		6.5			6.5	6.5		6.5		6.5	
Vehicle Extension (s)	3.0		3.0			3.0	3.0		3.0		3.0	
Lane Grp Cap (vph)	30		2282			75	2455		159	0	143	
v/s Ratio Prot	0.01		c0.22			0.02	c0.46		c0.06			
v/s Ratio Perm											0.00	
v/c Ratio	0.40		0.32			0.39	0.63		0.64	0.00	0.01	
Uniform Delay, d1	55.8		6.9			53.4	8.3		50.4	57.5	47.5	
Progression Factor	0.75		0.60			1.14	0.60		1.00	1.00	1.00	
Incremental Delay, d2	8.3		0.4			2.6	1.0		17.8	0.0	0.2	
Delay (s)	50.0		4.5			63.6	5.9		68.2	57.5	47.7	
Level of Service	D		A			E	A		E	E	D	
Approach Delay (s)			5.2				7.0			64.4		
Approach LOS			A				A			E		

Intersection Summary			
HCM 2000 Control Delay	9.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	51.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



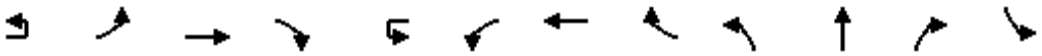
Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	0	0
Future Volume (vph)	0	0
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	0	0
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	0	0
Heavy Vehicles (%)	2%	2%
Turn Type		
Protected Phases		
Permitted Phases		
Actuated Green, G (s)		
Effective Green, g (s)		
Actuated g/C Ratio		
Clearance Time (s)		
Vehicle Extension (s)		
Lane Grp Cap (vph)		
v/s Ratio Prot		
v/s Ratio Perm		
v/c Ratio		
Uniform Delay, d1		
Progression Factor		
Incremental Delay, d2		
Delay (s)		
Level of Service		
Approach Delay (s)	0.0	
Approach LOS	A	

Intersection Summary

Lane Group	EBU	EBT	WBL	WBT	NBL	NBT	NBR
Lane Group Flow (vph)	12	726	29	1557	101	3	22
v/c Ratio	0.12	0.31	0.26	0.60	0.64	0.01	0.08
Control Delay	39.8	4.4	62.2	4.9	69.0	0.0	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.8	4.4	62.2	4.9	69.0	0.0	0.5
Queue Length 50th (ft)	9	102	23	69	73	0	0
Queue Length 95th (ft)	18	123	m38	177	119	0	0
Internal Link Dist (ft)		4715		2272		440	
Turn Bay Length (ft)	350		350				10
Base Capacity (vph)	151	2358	155	2608	159	218	285
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.31	0.19	0.60	0.64	0.01	0.08

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	2	25	623	6	4	4	1339	20	6	6	4	24
Future Volume (vph)	2	25	623	6	4	4	1339	20	6	6	4	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5			6.5	6.5			6.5		
Lane Util. Factor		1.00	0.95			1.00	0.95			1.00		
Frt		1.00	1.00			1.00	1.00			0.97		
Flt Protected		0.95	1.00			0.95	1.00			0.98		
Satd. Flow (prot)		1656	3305			1736	3462			1777		
Flt Permitted		0.95	1.00			0.95	1.00			0.82		
Satd. Flow (perm)		1656	3305			1736	3462			1480		
Peak-hour factor, PHF	0.50	0.86	0.87	0.63	0.33	1.00	0.89	0.75	0.38	0.38	0.50	0.82
Adj. Flow (vph)	4	29	716	10	12	4	1504	27	16	16	8	29
RTOR Reduction (vph)	0	0	1	0	0	0	1	0	0	7	0	0
Lane Group Flow (vph)	0	33	725	0	0	16	1530	0	0	33	0	0
Heavy Vehicles (%)	9%	9%	9%	9%	4%	4%	4%	4%	2%	2%	2%	11%
Turn Type	Prot	Prot	NA		Prot	Prot	NA		Perm	NA		Perm
Protected Phases	7	7	4		3	3	8			2		
Permitted Phases									2			6
Actuated Green, G (s)		7.6	81.9			3.1	77.4			10.5		
Effective Green, g (s)		7.6	81.9			3.1	77.4			10.5		
Actuated g/C Ratio		0.07	0.71			0.03	0.67			0.09		
Clearance Time (s)		6.5	6.5			6.5	6.5			6.5		
Vehicle Extension (s)		3.0	3.0			3.0	3.0			3.0		
Lane Grp Cap (vph)		109	2353			46	2330			135		
v/s Ratio Prot		0.02	c0.22			0.01	c0.44					
v/s Ratio Perm										0.02		
v/c Ratio		0.30	0.31			0.35	0.66			0.24		
Uniform Delay, d1		51.2	6.1			55.0	11.0			48.6		
Progression Factor		1.26	2.27			1.00	1.00			1.00		
Incremental Delay, d2		1.5	0.3			4.5	1.5			4.2		
Delay (s)		66.2	14.2			59.5	12.5			52.8		
Level of Service		E	B			E	B			D		
Approach Delay (s)			16.5				13.0			52.8		
Approach LOS			B				B			D		

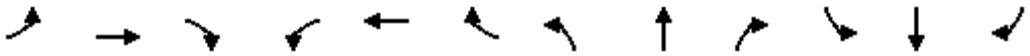
Intersection Summary			
HCM 2000 Control Delay	16.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	53.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	9	43
Future Volume (vph)	9	43
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	6.5	
Lane Util. Factor	1.00	
Frt	0.93	
Flt Protected	0.98	
Satd. Flow (prot)	1567	
Flt Permitted	0.88	
Satd. Flow (perm)	1403	
Peak-hour factor, PHF	0.56	0.88
Adj. Flow (vph)	16	49
RTOR Reduction (vph)	35	0
Lane Group Flow (vph)	59	0
Heavy Vehicles (%)	11%	11%
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	10.5	
Effective Green, g (s)	10.5	
Actuated g/C Ratio	0.09	
Clearance Time (s)	6.5	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	128	
v/s Ratio Prot		
v/s Ratio Perm	c0.04	
v/c Ratio	0.46	
Uniform Delay, d1	49.6	
Progression Factor	1.00	
Incremental Delay, d2	11.6	
Delay (s)	61.2	
Level of Service	E	
Approach Delay (s)	61.2	
Approach LOS	E	

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	33	726	16	1531	40	94
v/c Ratio	0.26	0.29	0.16	0.63	0.28	0.58
Control Delay	67.4	12.9	54.4	11.6	46.6	46.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.4	12.9	54.4	11.6	46.6	46.1
Queue Length 50th (ft)	26	128	12	345	22	40
Queue Length 95th (ft)	58	202	35	412	20	46
Internal Link Dist (ft)		2272		1581	712	348
Turn Bay Length (ft)	450		425			
Base Capacity (vph)	151	2465	158	2447	142	162
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.29	0.10	0.63	0.28	0.58

Intersection Summary

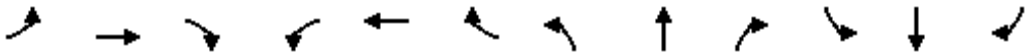


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	24	0	0	0	173	42	0	41	0
Future Volume (Veh/h)	0	0	0	24	0	0	0	173	42	0	41	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.64	0.92	0.92	0.92	0.94	0.67	0.92	0.75	0.92
Hourly flow rate (vph)	0	0	0	38	0	0	0	184	63	0	55	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								801				
pX, platoon unblocked												
vC, conflicting volume	270	302	55	270	270	216	55			247		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	270	302	55	270	270	216	55			247		
tC, single (s)	7.1	6.5	6.2	7.6	7.0	6.7	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	4.0	4.5	3.8	2.2			2.2		
p0 queue free %	100	100	100	94	100	100	100			100		
cM capacity (veh/h)	682	611	1012	595	562	718	1544			1302		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	0	38	247	55
Volume Left	0	38	0	0
Volume Right	0	0	63	0
cSH	1700	595	1544	1302
Volume to Capacity	0.00	0.06	0.00	0.00
Queue Length 95th (ft)	0	5	0	0
Control Delay (s)	0.0	11.5	0.0	0.0
Lane LOS	A	B		
Approach Delay (s)	0.0	11.5	0.0	0.0
Approach LOS	A	B		

Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	21.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Capacity Analysis
Background PM Peak Hour



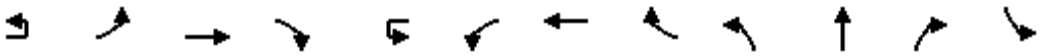
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	117	1619	16	12	1050	24	14	16	1	34	17	113
Future Volume (vph)	117	1619	16	12	1050	24	14	16	1	34	17	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.5		4.5	6.5			5.5			5.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	1.00		1.00	0.99			0.99			0.92	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.99	
Satd. Flow (prot)	1752	3496		1736	3450			1673			1667	
Flt Permitted	0.95	1.00		0.95	1.00			0.81			0.90	
Satd. Flow (perm)	1752	3496		1736	3450			1384			1524	
Peak-hour factor, PHF	0.84	0.91	0.50	0.39	0.92	0.50	0.65	0.63	0.25	0.62	0.67	0.84
Adj. Flow (vph)	139	1779	32	31	1141	48	22	25	4	55	25	135
RTOR Reduction (vph)	0	1	0	0	3	0	0	2	0	0	53	0
Lane Group Flow (vph)	139	1810	0	31	1186	0	0	49	0	0	162	0
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	10%	10%	10%	3%	3%	3%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	12.4	69.8		5.2	62.6			23.5			23.5	
Effective Green, g (s)	12.4	69.8		5.2	62.6			23.5			23.5	
Actuated g/C Ratio	0.11	0.61		0.05	0.54			0.20			0.20	
Clearance Time (s)	4.5	6.5		4.5	6.5			5.5			5.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	188	2121		78	1878			282			311	
v/s Ratio Prot	c0.08	c0.52		0.02	0.34							
v/s Ratio Perm								0.04			c0.11	
v/c Ratio	0.74	0.85		0.40	0.63			0.17			0.52	
Uniform Delay, d1	49.7	18.4		53.4	18.2			37.7			40.8	
Progression Factor	1.00	1.00		1.03	1.10			1.00			1.00	
Incremental Delay, d2	14.1	4.6		2.8	1.4			1.3			6.2	
Delay (s)	63.8	23.0		57.7	21.4			39.1			46.9	
Level of Service	E	C		E	C			D			D	
Approach Delay (s)		26.0			22.3			39.1			46.9	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	26.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	73.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	139	1811	31	1189	51	215
v/c Ratio	0.74	0.83	0.27	0.63	0.18	0.59
Control Delay	72.4	22.8	56.9	21.9	38.0	35.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.4	22.8	56.9	21.9	38.0	35.9
Queue Length 50th (ft)	100	570	25	251	30	100
Queue Length 95th (ft)	#159	#744	25	240	44	116
Internal Link Dist (ft)		611		3135	424	763
Turn Bay Length (ft)	200		150			
Base Capacity (vph)	205	2176	203	1879	285	363
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.83	0.15	0.63	0.18	0.59

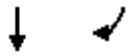
Intersection Summary

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



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	1	70	1576	6	16	9	1019	25	3	23	32	18
Future Volume (vph)	1	70	1576	6	16	9	1019	25	3	23	32	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5			6.5	6.5			6.5		
Lane Util. Factor		1.00	0.95			1.00	0.95			1.00		
Frt		1.00	1.00			1.00	1.00			0.93		
Flt Protected		0.95	1.00			0.95	1.00			1.00		
Satd. Flow (prot)		1770	3535			1736	3455			1729		
Flt Permitted		0.95	1.00			0.95	1.00			0.97		
Satd. Flow (perm)		1770	3535			1736	3455			1678		
Peak-hour factor, PHF	0.25	0.76	0.91	0.42	0.63	0.75	0.93	0.71	0.38	0.69	0.79	0.71
Adj. Flow (vph)	4	92	1732	14	25	12	1096	35	8	33	41	25
RTOR Reduction (vph)	0	0	0	0	0	0	2	0	0	31	0	0
Lane Group Flow (vph)	0	96	1746	0	0	37	1129	0	0	51	0	0
Heavy Vehicles (%)	2%	2%	2%	2%	4%	4%	4%	4%	2%	2%	2%	2%
Turn Type	Prot	Prot	NA		Prot	Prot	NA		Perm	NA		Perm
Protected Phases	7	7	4		3	3	8			2		
Permitted Phases									2			6
Actuated Green, G (s)		13.1	72.5			5.5	64.9			17.5		
Effective Green, g (s)		13.1	72.5			5.5	64.9			17.5		
Actuated g/C Ratio		0.11	0.63			0.05	0.56			0.15		
Clearance Time (s)		6.5	6.5			6.5	6.5			6.5		
Vehicle Extension (s)		3.0	3.0			3.0	3.0			3.0		
Lane Grp Cap (vph)		201	2228			83	1949			255		
v/s Ratio Prot		0.05	c0.49			0.02	c0.33					
v/s Ratio Perm										0.03		
v/c Ratio		0.48	0.78			0.45	0.58			0.20		
Uniform Delay, d1		47.7	15.5			53.3	16.2			42.6		
Progression Factor		1.03	1.23			0.97	0.91			1.00		
Incremental Delay, d2		1.0	1.6			3.5	1.2			1.7		
Delay (s)		50.3	20.7			55.0	15.9			44.4		
Level of Service		D	C			D	B			D		
Approach Delay (s)			22.3				17.2			44.4		
Approach LOS			C				B			D		

Intersection Summary			
HCM 2000 Control Delay	22.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	76.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



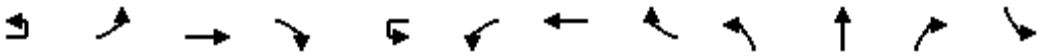
Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	15	63
Future Volume (vph)	15	63
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	6.5	
Lane Util. Factor	1.00	
Frt	0.92	
Flt Protected	0.99	
Satd. Flow (prot)	1692	
Flt Permitted	0.93	
Satd. Flow (perm)	1585	
Peak-hour factor, PHF	0.58	0.77
Adj. Flow (vph)	26	82
RTOR Reduction (vph)	50	0
Lane Group Flow (vph)	83	0
Heavy Vehicles (%)	2%	2%
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	17.5	
Effective Green, g (s)	17.5	
Actuated g/C Ratio	0.15	
Clearance Time (s)	6.5	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	241	
v/s Ratio Prot		
v/s Ratio Perm	c0.05	
v/c Ratio	0.34	
Uniform Delay, d1	43.6	
Progression Factor	1.00	
Incremental Delay, d2	3.9	
Delay (s)	47.5	
Level of Service	D	
Approach Delay (s)	47.5	
Approach LOS	D	

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	96	1746	37	1131	82	133
v/c Ratio	0.60	0.76	0.31	0.56	0.29	0.46
Control Delay	61.2	20.5	54.9	14.4	28.5	30.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.2	20.5	54.9	14.4	28.5	30.6
Queue Length 50th (ft)	62	401	28	197	29	49
Queue Length 95th (ft)	m79	502	52	278	51	54
Internal Link Dist (ft)		3135		2810	317	753
Turn Bay Length (ft)	350		500			
Base Capacity (vph)	161	2310	158	2029	286	291
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.76	0.23	0.56	0.29	0.46

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

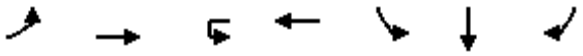


Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	30	25	1546	0	14	0	863	14	0	0	0	95
Future Volume (vph)	30	25	1546	0	14	0	863	14	0	0	0	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5		6.5		6.5					6.5
Lane Util. Factor		1.00	0.95		1.00		0.95					1.00
Frt		1.00	1.00		1.00		1.00					1.00
Flt Protected		0.95	1.00		0.95		1.00					0.95
Satd. Flow (prot)		1770	3539		1719		3428					1770
Flt Permitted		0.95	1.00		0.95		1.00					0.95
Satd. Flow (perm)		1770	3539		1719		3428					1770
Peak-hour factor, PHF	0.60	0.86	0.92	0.92	0.65	0.25	0.95	0.75	0.92	0.92	0.92	0.75
Adj. Flow (vph)	50	29	1680	0	22	0	908	19	0	0	0	127
RTOR Reduction (vph)	0	0	0	0	0	0	1	0	0	0	0	0
Lane Group Flow (vph)	0	79	1680	0	22	0	926	0	0	0	0	127
Heavy Vehicles (%)	2%	2%	2%	2%	5%	5%	5%	5%	2%	2%	2%	2%
Turn Type	Prot	Prot	NA		Prot		NA					Prot
Protected Phases	7	7	4		3		8					6
Permitted Phases												
Actuated Green, G (s)		8.1	76.8		4.2		72.9					14.5
Effective Green, g (s)		8.1	76.8		4.2		72.9					14.5
Actuated g/C Ratio		0.07	0.67		0.04		0.63					0.13
Clearance Time (s)		6.5	6.5		6.5		6.5					6.5
Vehicle Extension (s)		3.0	3.0		3.0		3.0					3.0
Lane Grp Cap (vph)		124	2363		62		2173					223
v/s Ratio Prot		0.04	c0.47		0.01		c0.27					c0.07
v/s Ratio Perm												
v/c Ratio		0.64	0.71		0.35		0.43					0.57
Uniform Delay, d1		52.0	12.1		54.1		10.6					47.3
Progression Factor		0.67	1.73		1.28		1.82					1.00
Incremental Delay, d2		6.9	1.2		3.3		0.6					10.1
Delay (s)		41.5	22.1		72.4		19.9					57.5
Level of Service		D	C		E		B					E
Approach Delay (s)			22.9				21.1			0.0		
Approach LOS			C				C			A		

Intersection Summary			
HCM 2000 Control Delay	25.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	59.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	0	160
Future Volume (vph)	0	160
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	4.0	6.5
Lane Util. Factor	1.00	1.00
Frt	0.85	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	0	1583
Flt Permitted	1.00	1.00
Satd. Flow (perm)	0	1583
Peak-hour factor, PHF	0.92	0.83
Adj. Flow (vph)	0	193
RTOR Reduction (vph)	19	137
Lane Group Flow (vph)	0	37
Heavy Vehicles (%)	2%	2%
Turn Type		Perm
Protected Phases		
Permitted Phases		6
Actuated Green, G (s)	0.0	14.5
Effective Green, g (s)	0.0	14.5
Actuated g/C Ratio	0.00	0.13
Clearance Time (s)		6.5
Vehicle Extension (s)		3.0
Lane Grp Cap (vph)	0	199
v/s Ratio Prot		
v/s Ratio Perm		0.02
v/c Ratio	0.00	0.18
Uniform Delay, d1	57.5	45.0
Progression Factor	1.00	1.00
Incremental Delay, d2	0.0	2.0
Delay (s)	57.5	47.0
Level of Service	E	D
Approach Delay (s)	51.8	
Approach LOS	D	

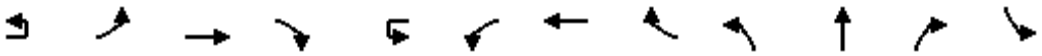
Intersection Summary



Lane Group	EBL	EBT	WBU	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	79	1680	22	927	127	19	174
v/c Ratio	0.55	0.68	0.19	0.42	0.57	0.09	0.52
Control Delay	43.5	20.9	66.6	20.1	58.2	0.0	15.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.5	20.9	66.6	20.1	58.2	0.0	15.5
Queue Length 50th (ft)	53	318	18	271	90	0	11
Queue Length 95th (ft)	m75	606	31	266	126	0	61
Internal Link Dist (ft)		2810		4715		721	
Turn Bay Length (ft)	350		400				10
Base Capacity (vph)	161	2483	156	2213	223	218	336
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.68	0.14	0.42	0.57	0.09	0.52

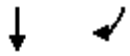
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	13	0	1496	119	2	39	820	0	58	0	61	0
Future Volume (vph)	13	0	1496	119	2	39	820	0	58	0	61	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5		6.5			6.5	6.5		6.5	4.0	6.5	
Lane Util. Factor	1.00		0.95			1.00	0.95		1.00	1.00	1.00	
Frt	1.00		0.99			1.00	1.00		1.00	0.85	0.85	
Flt Protected	0.95		1.00			0.95	1.00		0.95	1.00	1.00	
Satd. Flow (prot)	1770		3495			1736	3471		1752	0	1568	
Flt Permitted	0.95		1.00			0.95	1.00		0.95	1.00	1.00	
Satd. Flow (perm)	1770		3495			1736	3471		1752	0	1568	
Peak-hour factor, PHF	0.60	0.92	0.93	0.82	0.50	0.84	0.98	0.92	0.86	0.92	0.81	0.92
Adj. Flow (vph)	22	0	1609	145	4	46	837	0	67	0	75	0
RTOR Reduction (vph)	0	0	6	0	0	0	0	0	0	8	61	0
Lane Group Flow (vph)	22	0	1748	0	0	50	837	0	67	0	6	0
Heavy Vehicles (%)	2%	2%	2%	2%	4%	4%	4%	4%	3%	3%	3%	2%
Turn Type	Prot		NA		Prot	Prot	NA		Prot		Perm	
Protected Phases	7		4		3	3	8		2			
Permitted Phases											2	
Actuated Green, G (s)	4.2		77.7			7.3	80.8		10.5	0.0	10.5	
Effective Green, g (s)	4.2		77.7			7.3	80.8		10.5	0.0	10.5	
Actuated g/C Ratio	0.04		0.68			0.06	0.70		0.09	0.00	0.09	
Clearance Time (s)	6.5		6.5			6.5	6.5		6.5		6.5	
Vehicle Extension (s)	3.0		3.0			3.0	3.0		3.0		3.0	
Lane Grp Cap (vph)	64		2361			110	2438		159	0	143	
v/s Ratio Prot	0.01		c0.50			0.03	c0.24		c0.04			
v/s Ratio Perm											0.00	
v/c Ratio	0.34		0.74			0.45	0.34		0.42	0.00	0.04	
Uniform Delay, d1	54.1		12.1			51.9	6.7		49.4	57.5	47.7	
Progression Factor	0.95		0.96			1.25	0.73		1.00	1.00	1.00	
Incremental Delay, d2	2.4		1.6			2.8	0.4		8.0	0.0	0.6	
Delay (s)	53.7		13.2			67.8	5.2		57.4	57.5	48.2	
Level of Service	D		B			E	A		E	E	D	
Approach Delay (s)			13.7				8.8			53.1		
Approach LOS			B				A			D		

Intersection Summary			
HCM 2000 Control Delay	14.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	60.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	0	0
Future Volume (vph)	0	0
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	0	0
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	0	0
Heavy Vehicles (%)	2%	2%
Turn Type		
Protected Phases		
Permitted Phases		
Actuated Green, G (s)		
Effective Green, g (s)		
Actuated g/C Ratio		
Clearance Time (s)		
Vehicle Extension (s)		
Lane Grp Cap (vph)		
v/s Ratio Prot		
v/s Ratio Perm		
v/c Ratio		
Uniform Delay, d1		
Progression Factor		
Incremental Delay, d2		
Delay (s)		
Level of Service		
Approach Delay (s)	0.0	
Approach LOS	A	

Intersection Summary

Lane Group	EBU	EBT	WBL	WBT	NBL	NBT	NBR
Lane Group Flow (vph)	22	1754	50	837	67	8	67
v/c Ratio	0.18	0.73	0.40	0.33	0.42	0.04	0.24
Control Delay	49.5	13.4	71.5	4.9	58.1	0.0	1.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.5	13.4	71.5	4.9	58.1	0.0	1.9
Queue Length 50th (ft)	14	375	39	36	48	0	0
Queue Length 95th (ft)	m21	436	m76	101	90	0	0
Internal Link Dist (ft)		4715		2272		440	
Turn Bay Length (ft)	350		350				10
Base Capacity (vph)	161	2407	158	2556	159	218	285
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.73	0.32	0.33	0.42	0.04	0.24

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	42	1516	17	3	4	818	32	3	21	15	28	15
Future Volume (vph)	42	1516	17	3	4	818	32	3	21	15	28	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5			6.5	6.5			6.5			6.5
Lane Util. Factor	1.00	0.95			1.00	0.95			1.00			1.00
Frt	1.00	1.00			1.00	0.99			0.95			0.92
Flt Protected	0.95	1.00			0.95	1.00			0.99			0.99
Satd. Flow (prot)	1770	3534			1736	3446			1733			1664
Flt Permitted	0.95	1.00			0.95	1.00			0.91			0.90
Satd. Flow (perm)	1770	3534			1736	3446			1592			1528
Peak-hour factor, PHF	0.67	0.90	1.00	0.38	0.33	0.94	0.72	0.38	0.71	0.58	0.75	0.88
Adj. Flow (vph)	63	1684	17	8	12	870	44	8	30	26	37	17
RTOR Reduction (vph)	0	1	0	0	0	3	0	0	22	0	0	40
Lane Group Flow (vph)	63	1700	0	0	20	911	0	0	42	0	0	83
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%	4%	3%	3%	3%	4%	4%
Turn Type	Prot	NA		Prot	Prot	NA		Perm	NA		Perm	NA
Protected Phases	7	4		3	3	8			2			6
Permitted Phases								2			6	
Actuated Green, G (s)	11.0	81.7			3.3	74.0			10.5			10.5
Effective Green, g (s)	11.0	81.7			3.3	74.0			10.5			10.5
Actuated g/C Ratio	0.10	0.71			0.03	0.64			0.09			0.09
Clearance Time (s)	6.5	6.5			6.5	6.5			6.5			6.5
Vehicle Extension (s)	3.0	3.0			3.0	3.0			3.0			3.0
Lane Grp Cap (vph)	169	2510			49	2217			145			139
v/s Ratio Prot	0.04	c0.48			0.01	c0.26						
v/s Ratio Perm									0.03			c0.05
v/c Ratio	0.37	0.68			0.41	0.41			0.29			0.60
Uniform Delay, d1	48.8	9.3			54.9	9.9			48.8			50.2
Progression Factor	1.04	1.41			1.00	1.00			1.00			1.00
Incremental Delay, d2	1.0	1.1			5.5	0.6			5.0			17.5
Delay (s)	51.9	14.2			60.4	10.5			53.8			67.7
Level of Service	D	B			E	B			D			E
Approach Delay (s)		15.5				11.6			53.8			67.7
Approach LOS		B				B			D			E

Intersection Summary			
HCM 2000 Control Delay	17.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	64.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

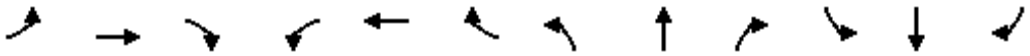
Movement	SBR
Lane Configurations	
Traffic Volume (vph)	40
Future Volume (vph)	40
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.58
Adj. Flow (vph)	69
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Heavy Vehicles (%)	4%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	63	1701	20	914	64	123
v/c Ratio	0.43	0.65	0.19	0.39	0.38	0.69
Control Delay	58.8	13.0	55.0	9.3	40.2	52.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.8	13.0	55.0	9.3	40.2	52.7
Queue Length 50th (ft)	49	295	14	155	28	57
Queue Length 95th (ft)	m63	325	14	194	53	#136
Internal Link Dist (ft)		2272		1581	712	348
Turn Bay Length (ft)	450		425			
Base Capacity (vph)	161	2632	158	2338	167	179
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.65	0.13	0.39	0.38	0.69

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

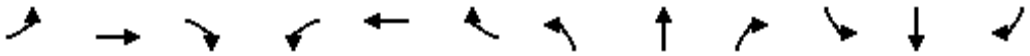


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	1	92	0	2	4	16	15	2	129	0
Future Volume (Veh/h)	0	0	1	92	0	2	4	16	15	2	129	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.25	0.71	0.92	0.50	0.50	0.63	0.70	0.25	0.65	0.92
Hourly flow rate (vph)	0	0	4	130	0	4	8	25	21	8	198	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								801				
pX, platoon unblocked												
vC, conflicting volume	270	276	198	270	266	36	198			46		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	270	276	198	270	266	36	198			46		
tC, single (s)	8.1	7.5	7.2	7.1	6.5	6.2	4.2			4.1		
tC, 2 stage (s)												
tF (s)	4.4	4.9	4.2	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	100	100	99	81	100	100	99			99		
cM capacity (veh/h)	517	490	646	673	633	1037	1317			1562		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	4	134	54	206
Volume Left	0	130	8	8
Volume Right	4	4	21	0
cSH	646	680	1317	1562
Volume to Capacity	0.01	0.20	0.01	0.01
Queue Length 95th (ft)	0	18	0	0
Control Delay (s)	10.6	11.6	1.2	0.3
Lane LOS	B	B	A	A
Approach Delay (s)	10.6	11.6	1.2	0.3
Approach LOS	B	B		

Intersection Summary				
Average Delay	4.3			
Intersection Capacity Utilization	25.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Capacity Analysis
Full Development AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	109	954	1	10	1523	28	24	11	6	12	8	89
Future Volume (vph)	109	954	1	10	1523	28	24	11	6	12	8	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.5		4.5	6.5			5.5			5.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	1.00		1.00	1.00			0.97			0.90	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.99	
Satd. Flow (prot)	1687	3372		1719	3425			1784			1516	
Flt Permitted	0.95	1.00		0.95	1.00			0.84			0.95	
Satd. Flow (perm)	1687	3372		1719	3425			1532			1456	
Peak-hour factor, PHF	0.81	0.89	0.25	0.75	0.90	0.63	0.82	0.63	0.50	0.56	0.50	0.85
Adj. Flow (vph)	135	1072	4	13	1692	44	29	17	12	21	16	105
RTOR Reduction (vph)	0	0	0	0	1	0	0	8	0	0	84	0
Lane Group Flow (vph)	135	1076	0	13	1735	0	0	50	0	0	58	0
Heavy Vehicles (%)	7%	7%	7%	5%	5%	5%	1%	1%	1%	12%	12%	12%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	12.4	72.0		3.0	62.6			23.5			23.5	
Effective Green, g (s)	12.4	72.0		3.0	62.6			23.5			23.5	
Actuated g/C Ratio	0.11	0.63		0.03	0.54			0.20			0.20	
Clearance Time (s)	4.5	6.5		4.5	6.5			5.5			5.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	181	2111		44	1864			313			297	
v/s Ratio Prot	c0.08	0.32		0.01	c0.51							
v/s Ratio Perm								0.03			c0.04	
v/c Ratio	0.75	0.51		0.30	0.93			0.16			0.20	
Uniform Delay, d1	49.8	11.8		55.0	24.2			37.6			37.9	
Progression Factor	1.00	1.00		1.04	0.64			1.00			1.00	
Incremental Delay, d2	15.3	0.9		2.6	7.3			1.1			1.5	
Delay (s)	65.1	12.7		59.5	22.7			38.7			39.4	
Level of Service	E	B		E	C			D			D	
Approach Delay (s)		18.5			22.9			38.7			39.4	
Approach LOS		B			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	22.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	70.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	135	1076	13	1736	58	142
v/c Ratio	0.74	0.49	0.14	0.93	0.18	0.37
Control Delay	73.5	12.1	55.1	23.9	33.9	15.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.5	12.1	55.1	23.9	33.9	15.6
Queue Length 50th (ft)	97	170	10	167	29	23
Queue Length 95th (ft)	147	295	m15	#788	44	13
Internal Link Dist (ft)		611		3135	424	763
Turn Bay Length (ft)	200		150			
Base Capacity (vph)	198	2188	201	1864	321	381
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.49	0.06	0.93	0.18	0.37

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	27	945	0	13	9	1472	15	3	5	24	33	7
Future Volume (vph)	27	945	0	13	9	1472	15	3	5	24	33	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5			6.5	6.5			6.5			6.5
Lane Util. Factor	1.00	0.95			1.00	0.95			1.00			1.00
Frt	1.00	1.00			1.00	1.00			0.90			0.90
Flt Protected	0.95	1.00			0.95	1.00			1.00			0.99
Satd. Flow (prot)	1687	3374			1703	3397			1537			1647
Flt Permitted	0.95	1.00			0.95	1.00			0.97			0.91
Satd. Flow (perm)	1687	3374			1703	3397			1497			1517
Peak-hour factor, PHF	0.72	0.85	0.25	0.60	0.50	0.92	0.55	0.75	0.63	0.75	0.93	0.88
Adj. Flow (vph)	38	1112	0	22	18	1600	27	4	8	32	35	8
RTOR Reduction (vph)	0	0	0	0	0	1	0	0	27	0	0	80
Lane Group Flow (vph)	38	1112	0	0	40	1626	0	0	17	0	0	73
Heavy Vehicles (%)	7%	7%	7%	6%	6%	6%	6%	11%	11%	11%	3%	3%
Turn Type	Prot	NA		Prot	Prot	NA		Perm	NA		Perm	NA
Protected Phases	7	4		3	3	8			2			6
Permitted Phases								2			6	
Actuated Green, G (s)	6.3	72.4			5.6	71.7			17.5			17.5
Effective Green, g (s)	6.3	72.4			5.6	71.7			17.5			17.5
Actuated g/C Ratio	0.05	0.63			0.05	0.62			0.15			0.15
Clearance Time (s)	6.5	6.5			6.5	6.5			6.5			6.5
Vehicle Extension (s)	3.0	3.0			3.0	3.0			3.0			3.0
Lane Grp Cap (vph)	92	2124			82	2117			227			230
v/s Ratio Prot	0.02	c0.33			0.02	c0.48						
v/s Ratio Perm									0.01			c0.05
v/c Ratio	0.41	0.52			0.49	0.77			0.07			0.32
Uniform Delay, d1	52.6	11.8			53.3	15.6			41.8			43.4
Progression Factor	0.81	0.88			0.60	1.91			1.00			1.00
Incremental Delay, d2	2.7	0.8			1.5	0.9			0.6			3.6
Delay (s)	45.1	11.2			33.5	30.8			42.4			47.1
Level of Service	D	B			C	C			D			D
Approach Delay (s)		12.4				30.9			42.4			47.1
Approach LOS		B				C			D			D

Intersection Summary			
HCM 2000 Control Delay	24.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	66.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

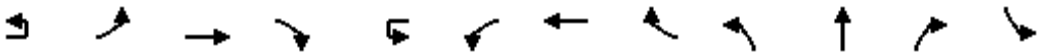
Movement	SBR
Lane Configurations	
Traffic Volume (vph)	87
Future Volume (vph)	87
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.79
Adj. Flow (vph)	110
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Heavy Vehicles (%)	3%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	38	1112	40	1627	44	153
v/c Ratio	0.30	0.51	0.34	0.74	0.17	0.49
Control Delay	45.2	11.1	32.8	30.9	21.1	24.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.2	11.1	32.8	30.9	21.1	24.5
Queue Length 50th (ft)	26	168	28	590	8	39
Queue Length 95th (ft)	40	207	m27	m608	22	101
Internal Link Dist (ft)		3135		2810	317	753
Turn Bay Length (ft)	350		500			
Base Capacity (vph)	154	2201	155	2196	255	310
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.51	0.26	0.74	0.17	0.49

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

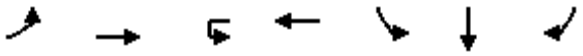


Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	24	345	642	0	4	0	1369	187	0	0	0	66
Future Volume (vph)	24	345	642	0	4	0	1369	187	0	0	0	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5		6.5		6.5					6.5
Lane Util. Factor		1.00	0.95		1.00		0.95					1.00
Frt		1.00	1.00		1.00		0.98					1.00
Flt Protected		0.95	1.00		0.95		1.00					0.95
Satd. Flow (prot)		1671	3343		1736		3411					1543
Flt Permitted		0.95	1.00		0.95		1.00					0.95
Satd. Flow (perm)		1671	3343		1736		3411					1543
Peak-hour factor, PHF	0.52	0.82	0.89	0.92	0.33	0.92	0.88	0.92	0.92	0.92	0.92	0.60
Adj. Flow (vph)	46	421	721	0	12	0	1556	203	0	0	0	110
RTOR Reduction (vph)	0	0	0	0	0	0	9	0	0	0	0	0
Lane Group Flow (vph)	0	467	721	0	12	0	1750	0	0	0	0	110
Heavy Vehicles (%)	8%	8%	8%	2%	4%	4%	4%	4%	2%	2%	2%	17%
Turn Type	Prot	Prot	NA		Prot		NA					Prot
Protected Phases	7	7	4		3		8					6
Permitted Phases												
Actuated Green, G (s)		20.5	78.9		2.1		60.5					14.5
Effective Green, g (s)		20.5	78.9		2.1		60.5					14.5
Actuated g/C Ratio		0.18	0.69		0.02		0.53					0.13
Clearance Time (s)		6.5	6.5		6.5		6.5					6.5
Vehicle Extension (s)		3.0	3.0		3.0		3.0					3.0
Lane Grp Cap (vph)		297	2293		31		1794					194
v/s Ratio Prot		c0.28	0.22		0.01		c0.51					c0.07
v/s Ratio Perm												
v/c Ratio		1.57	0.31		0.39		0.98					0.57
Uniform Delay, d1		47.2	7.2		55.8		26.5					47.3
Progression Factor		0.89	1.68		1.29		1.44					1.00
Incremental Delay, d2		271.5	0.3		6.1		13.7					11.5
Delay (s)		313.6	12.5		78.0		51.8					58.8
Level of Service		F	B		E		D					E
Approach Delay (s)			130.8				52.0			0.0		
Approach LOS			F				D			A		

Intersection Summary			
HCM 2000 Control Delay	81.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	86.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	0	99
Future Volume (vph)	0	99
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	4.0	6.5
Lane Util. Factor	1.00	1.00
Frt	0.85	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	0	1380
Flt Permitted	1.00	1.00
Satd. Flow (perm)	0	1380
Peak-hour factor, PHF	0.92	0.81
Adj. Flow (vph)	0	122
RTOR Reduction (vph)	12	96
Lane Group Flow (vph)	0	14
Heavy Vehicles (%)	17%	17%
Turn Type		Perm
Protected Phases		
Permitted Phases		6
Actuated Green, G (s)	0.0	14.5
Effective Green, g (s)	0.0	14.5
Actuated g/C Ratio	0.00	0.13
Clearance Time (s)		6.5
Vehicle Extension (s)		3.0
Lane Grp Cap (vph)	0	174
v/s Ratio Prot		
v/s Ratio Perm		0.01
v/c Ratio	0.00	0.08
Uniform Delay, d1	57.5	44.4
Progression Factor	1.00	1.00
Incremental Delay, d2	0.0	0.9
Delay (s)	57.5	45.3
Level of Service	E	D
Approach Delay (s)	52.3	
Approach LOS	D	

Intersection Summary



Lane Group	EBL	EBT	WBU	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	467	721	12	1759	110	12	110
v/c Ratio	1.57	0.30	0.12	0.98	0.57	0.06	0.35
Control Delay	302.4	10.5	66.2	51.1	59.6	0.0	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	302.4	10.5	66.2	51.1	59.6	0.0	5.4
Queue Length 50th (ft)	~506	140	10	686	78	0	0
Queue Length 95th (ft)	#631	224	11	#547	89	0	7
Internal Link Dist (ft)		2810		4715		721	
Turn Bay Length (ft)	350		400				10
Base Capacity (vph)	297	2444	158	1804	194	218	311
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.57	0.30	0.08	0.98	0.57	0.06	0.35

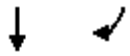
Intersection Summary

~ 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.

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	8	0	651	32	1	19	1463	0	89	0	17	0
Future Volume (vph)	8	0	651	32	1	19	1463	0	89	0	17	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5		6.5			6.5	6.5		6.5	4.0	6.5	
Lane Util. Factor	1.00		0.95			1.00	0.95		1.00	1.00	1.00	
Frt	1.00		0.99			1.00	1.00		1.00	0.85	0.85	
Flt Protected	0.95		1.00			0.95	1.00		0.95	1.00	1.00	
Satd. Flow (prot)	1656		3284			1703	3406		1752	0	1568	
Flt Permitted	0.95		1.00			0.95	1.00		0.95	1.00	1.00	
Satd. Flow (perm)	1656		3284			1703	3406		1752	0	1568	
Peak-hour factor, PHF	0.67	0.92	0.90	0.75	0.25	0.75	0.88	0.92	0.82	0.92	0.67	0.92
Adj. Flow (vph)	12	0	723	43	4	25	1662	0	109	0	25	0
RTOR Reduction (vph)	0	0	3	0	0	0	0	0	0	3	20	0
Lane Group Flow (vph)	12	0	763	0	0	29	1663	0	109	0	2	0
Heavy Vehicles (%)	9%	9%	9%	9%	6%	6%	6%	6%	3%	3%	3%	2%
Turn Type	Prot		NA		Prot	Prot	NA		Prot		Perm	
Protected Phases	7		4		3	3	8		2			
Permitted Phases											2	
Actuated Green, G (s)	2.1		79.9			5.1	82.9		10.5	0.0	10.5	
Effective Green, g (s)	2.1		79.9			5.1	82.9		10.5	0.0	10.5	
Actuated g/C Ratio	0.02		0.69			0.04	0.72		0.09	0.00	0.09	
Clearance Time (s)	6.5		6.5			6.5	6.5		6.5		6.5	
Vehicle Extension (s)	3.0		3.0			3.0	3.0		3.0		3.0	
Lane Grp Cap (vph)	30		2281			75	2455		159	0	143	
v/s Ratio Prot	0.01		c0.23			0.02	c0.49		c0.06			
v/s Ratio Perm											0.00	
v/c Ratio	0.40		0.33			0.39	0.68		0.69	0.00	0.01	
Uniform Delay, d1	55.8		7.0			53.4	8.8		50.6	57.5	47.5	
Progression Factor	0.67		0.47			1.13	0.62		1.00	1.00	1.00	
Incremental Delay, d2	8.2		0.4			2.5	1.1		21.4	0.0	0.2	
Delay (s)	45.7		3.7			62.8	6.6		72.1	57.5	47.7	
Level of Service	D		A			E	A		E	E	D	
Approach Delay (s)			4.3				7.6			67.8		
Approach LOS			A				A			E		

Intersection Summary			
HCM 2000 Control Delay	9.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	54.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	0	0
Future Volume (vph)	0	0
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	0	0
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	0	0
Heavy Vehicles (%)	2%	2%
Turn Type		
Protected Phases		
Permitted Phases		
Actuated Green, G (s)		
Effective Green, g (s)		
Actuated g/C Ratio		
Clearance Time (s)		
Vehicle Extension (s)		
Lane Grp Cap (vph)		
v/s Ratio Prot		
v/s Ratio Perm		
v/c Ratio		
Uniform Delay, d1		
Progression Factor		
Incremental Delay, d2		
Delay (s)		
Level of Service		
Approach Delay (s)	0.0	
Approach LOS	A	

Intersection Summary

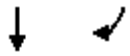
Lane Group	EBU	EBT	WBL	WBT	NBL	NBT	NBR
Lane Group Flow (vph)	12	766	29	1663	109	3	22
v/c Ratio	0.12	0.32	0.26	0.64	0.69	0.01	0.08
Control Delay	36.0	3.5	61.4	5.5	72.9	0.0	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.0	3.5	61.4	5.5	72.9	0.0	0.5
Queue Length 50th (ft)	9	100	23	73	80	0	0
Queue Length 95th (ft)	m17	110	m35	212	#136	0	0
Internal Link Dist (ft)		4715		2272		440	
Turn Bay Length (ft)	350		350				10
Base Capacity (vph)	151	2358	155	2608	159	218	285
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.32	0.19	0.64	0.69	0.01	0.08

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	2	26	655	7	4	4	1426	20	9	6	4	24
Future Volume (vph)	2	26	655	7	4	4	1426	20	9	6	4	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5			6.5	6.5			6.5		
Lane Util. Factor		1.00	0.95			1.00	0.95			1.00		
Frt		1.00	1.00			1.00	1.00			0.98		
Flt Protected		0.95	1.00			0.95	1.00			0.98		
Satd. Flow (prot)		1656	3305			1736	3463			1776		
Flt Permitted		0.95	1.00			0.95	1.00			0.77		
Satd. Flow (perm)		1656	3305			1736	3463			1402		
Peak-hour factor, PHF	0.50	0.86	0.87	0.63	0.33	1.00	0.89	0.75	0.38	0.38	0.50	0.82
Adj. Flow (vph)	4	30	753	11	12	4	1602	27	24	16	8	29
RTOR Reduction (vph)	0	0	1	0	0	0	1	0	0	6	0	0
Lane Group Flow (vph)	0	34	763	0	0	16	1628	0	0	42	0	0
Heavy Vehicles (%)	9%	9%	9%	9%	4%	4%	4%	4%	2%	2%	2%	11%
Turn Type	Prot	Prot	NA		Prot	Prot	NA		Perm	NA		Perm
Protected Phases	7	7	4		3	3	8			2		
Permitted Phases									2			6
Actuated Green, G (s)		7.6	81.9			3.1	77.4			10.5		
Effective Green, g (s)		7.6	81.9			3.1	77.4			10.5		
Actuated g/C Ratio		0.07	0.71			0.03	0.67			0.09		
Clearance Time (s)		6.5	6.5			6.5	6.5			6.5		
Vehicle Extension (s)		3.0	3.0			3.0	3.0			3.0		
Lane Grp Cap (vph)		109	2353			46	2330			128		
v/s Ratio Prot		0.02	c0.23			0.01	c0.47					
v/s Ratio Perm										0.03		
v/c Ratio		0.31	0.32			0.35	0.70			0.33		
Uniform Delay, d1		51.2	6.2			55.0	11.6			48.9		
Progression Factor		1.24	2.27			1.00	1.00			1.00		
Incremental Delay, d2		1.6	0.4			4.5	1.8			6.6		
Delay (s)		65.0	14.4			59.5	13.4			55.6		
Level of Service		E	B			E	B			E		
Approach Delay (s)			16.6				13.8			55.6		
Approach LOS			B				B			E		

Intersection Summary			
HCM 2000 Control Delay	17.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	56.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

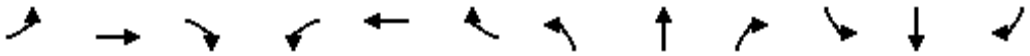


Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	9	46
Future Volume (vph)	9	46
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	6.5	
Lane Util. Factor	1.00	
Frt	0.93	
Flt Protected	0.99	
Satd. Flow (prot)	1564	
Flt Permitted	0.88	
Satd. Flow (perm)	1400	
Peak-hour factor, PHF	0.56	0.88
Adj. Flow (vph)	16	52
RTOR Reduction (vph)	36	0
Lane Group Flow (vph)	61	0
Heavy Vehicles (%)	11%	11%
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	10.5	
Effective Green, g (s)	10.5	
Actuated g/C Ratio	0.09	
Clearance Time (s)	6.5	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	127	
v/s Ratio Prot		
v/s Ratio Perm	c0.04	
v/c Ratio	0.48	
Uniform Delay, d1	49.6	
Progression Factor	1.00	
Incremental Delay, d2	12.3	
Delay (s)	62.0	
Level of Service	E	
Approach Delay (s)	62.0	
Approach LOS	E	

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	34	764	16	1629	48	97
v/c Ratio	0.27	0.31	0.16	0.67	0.36	0.59
Control Delay	66.4	13.1	54.4	12.4	51.4	46.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.4	13.1	54.4	12.4	51.4	46.2
Queue Length 50th (ft)	25	131	12	387	29	41
Queue Length 95th (ft)	57	204	35	461	25	47
Internal Link Dist (ft)		2272		1581	712	348
Turn Bay Length (ft)	450		425			
Base Capacity (vph)	151	2465	158	2449	134	164
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.31	0.10	0.67	0.36	0.59

Intersection Summary

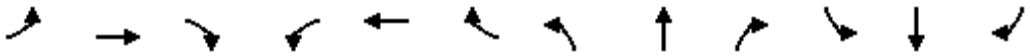


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	1	61	0	0	3	396	98	0	93	0
Future Volume (Veh/h)	0	0	1	61	0	0	3	396	98	0	93	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.25	0.64	0.92	0.92	0.92	0.94	0.67	0.92	0.75	0.92
Hourly flow rate (vph)	0	0	4	95	0	0	3	421	146	0	124	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								801				
pX, platoon unblocked												
vC, conflicting volume	624	697	124	628	624	494	124			567		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	624	697	124	628	624	494	124			567		
tC, single (s)	7.1	6.5	6.2	7.6	7.0	6.7	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	4.0	4.5	3.8	2.2			2.2		
p0 queue free %	100	100	100	71	100	100	100			100		
cM capacity (veh/h)	397	364	927	333	344	490	1457			990		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	4	95	570	124
Volume Left	0	95	3	0
Volume Right	4	0	146	0
cSH	927	333	1457	990
Volume to Capacity	0.00	0.29	0.00	0.00
Queue Length 95th (ft)	0	29	0	0
Control Delay (s)	8.9	20.1	0.1	0.0
Lane LOS	A	C	A	
Approach Delay (s)	8.9	20.1	0.1	0.0
Approach LOS	A	C		

Intersection Summary				
Average Delay	2.5			
Intersection Capacity Utilization	46.0%	ICU Level of Service	A	
Analysis Period (min)	15			

Capacity Analysis
Full Development PM Peak Hour



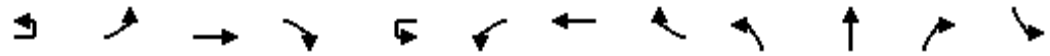
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	117	1692	16	14	1187	27	14	16	2	35	17	113
Future Volume (vph)	117	1692	16	14	1187	27	14	16	2	35	17	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.5		4.5	6.5			5.5			5.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	1.00		1.00	0.99			0.98			0.92	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.99	
Satd. Flow (prot)	1752	3496		1736	3450			1660			1667	
Flt Permitted	0.95	1.00		0.95	1.00			0.82			0.90	
Satd. Flow (perm)	1752	3496		1736	3450			1387			1519	
Peak-hour factor, PHF	0.84	0.91	0.50	0.39	0.92	0.50	0.65	0.63	0.25	0.62	0.67	0.84
Adj. Flow (vph)	139	1859	32	36	1290	54	22	25	8	56	25	135
RTOR Reduction (vph)	0	1	0	0	3	0	0	6	0	0	53	0
Lane Group Flow (vph)	139	1890	0	36	1341	0	0	49	0	0	163	0
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	10%	10%	10%	3%	3%	3%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	12.4	69.5		5.5	62.6			23.5			23.5	
Effective Green, g (s)	12.4	69.5		5.5	62.6			23.5			23.5	
Actuated g/C Ratio	0.11	0.60		0.05	0.54			0.20			0.20	
Clearance Time (s)	4.5	6.5		4.5	6.5			5.5			5.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	188	2112		83	1878			283			310	
v/s Ratio Prot	c0.08	c0.54		0.02	0.39							
v/s Ratio Perm								0.04			c0.11	
v/c Ratio	0.74	0.89		0.43	0.71			0.17			0.53	
Uniform Delay, d1	49.7	19.6		53.2	19.5			37.7			40.8	
Progression Factor	1.00	1.00		1.06	0.94			1.00			1.00	
Incremental Delay, d2	14.1	6.4		2.9	1.9			1.3			6.3	
Delay (s)	63.8	26.0		59.4	20.2			39.1			47.1	
Level of Service	E	C		E	C			D			D	
Approach Delay (s)		28.6			21.2			39.1			47.1	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	27.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	75.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	139	1891	36	1344	55	216
v/c Ratio	0.74	0.87	0.30	0.72	0.19	0.60
Control Delay	72.4	25.3	58.6	20.7	35.7	36.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.4	25.3	58.6	20.7	35.7	36.0
Queue Length 50th (ft)	100	629	29	241	30	101
Queue Length 95th (ft)	#159	#880	0	233	44	116
Internal Link Dist (ft)		611		3135	424	763
Turn Bay Length (ft)	200		150			
Base Capacity (vph)	205	2168	203	1879	288	363
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.87	0.18	0.72	0.19	0.60

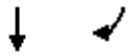
Intersection Summary

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



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	1	70	1651	6	16	11	1161	27	3	23	34	21
Future Volume (vph)	1	70	1651	6	16	11	1161	27	3	23	34	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5			6.5	6.5			6.5		
Lane Util. Factor		1.00	0.95			1.00	0.95			1.00		
Frt		1.00	1.00			1.00	1.00			0.93		
Flt Protected		0.95	1.00			0.95	1.00			1.00		
Satd. Flow (prot)		1770	3535			1736	3456			1726		
Flt Permitted		0.95	1.00			0.95	1.00			0.97		
Satd. Flow (perm)		1770	3535			1736	3456			1679		
Peak-hour factor, PHF	0.25	0.76	0.91	0.42	0.63	0.75	0.93	0.71	0.38	0.69	0.79	0.71
Adj. Flow (vph)	4	92	1814	14	25	15	1248	38	8	33	43	30
RTOR Reduction (vph)	0	0	0	0	0	0	2	0	0	33	0	0
Lane Group Flow (vph)	0	96	1828	0	0	40	1284	0	0	51	0	0
Heavy Vehicles (%)	2%	2%	2%	2%	4%	4%	4%	4%	2%	2%	2%	2%
Turn Type	Prot	Prot	NA		Prot	Prot	NA		Perm	NA		Perm
Protected Phases	7	7	4		3	3	8			2		
Permitted Phases									2			6
Actuated Green, G (s)		13.1	72.4			5.6	64.9			17.5		
Effective Green, g (s)		13.1	72.4			5.6	64.9			17.5		
Actuated g/C Ratio		0.11	0.63			0.05	0.56			0.15		
Clearance Time (s)		6.5	6.5			6.5	6.5			6.5		
Vehicle Extension (s)		3.0	3.0			3.0	3.0			3.0		
Lane Grp Cap (vph)		201	2225			84	1950			255		
v/s Ratio Prot		0.05	c0.52			0.02	c0.37					
v/s Ratio Perm										0.03		
v/c Ratio		0.48	0.82			0.48	0.66			0.20		
Uniform Delay, d1		47.7	16.3			53.3	17.4			42.6		
Progression Factor		1.04	1.24			1.06	0.89			1.00		
Incremental Delay, d2		0.9	1.8			3.3	1.4			1.8		
Delay (s)		50.6	22.0			59.7	16.8			44.4		
Level of Service		D	C			E	B			D		
Approach Delay (s)			23.4				18.1			44.4		
Approach LOS			C				B			D		

Intersection Summary			
HCM 2000 Control Delay	22.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	78.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



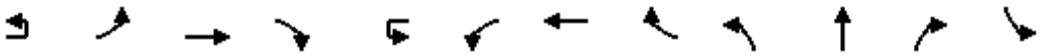
Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	15	63
Future Volume (vph)	15	63
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	6.5	
Lane Util. Factor	1.00	
Frt	0.92	
Flt Protected	0.99	
Satd. Flow (prot)	1695	
Flt Permitted	0.92	
Satd. Flow (perm)	1577	
Peak-hour factor, PHF	0.58	0.77
Adj. Flow (vph)	26	82
RTOR Reduction (vph)	46	0
Lane Group Flow (vph)	92	0
Heavy Vehicles (%)	2%	2%
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	17.5	
Effective Green, g (s)	17.5	
Actuated g/C Ratio	0.15	
Clearance Time (s)	6.5	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	239	
v/s Ratio Prot		
v/s Ratio Perm	c0.06	
v/c Ratio	0.39	
Uniform Delay, d1	43.9	
Progression Factor	1.00	
Incremental Delay, d2	4.7	
Delay (s)	48.6	
Level of Service	D	
Approach Delay (s)	48.6	
Approach LOS	D	

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	96	1828	40	1286	84	138
v/c Ratio	0.60	0.79	0.33	0.63	0.29	0.48
Control Delay	60.7	21.7	59.0	15.2	28.0	33.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.7	21.7	59.0	15.2	28.0	33.2
Queue Length 50th (ft)	63	438	30	211	29	56
Queue Length 95th (ft)	m75	528	m48	m318	51	60
Internal Link Dist (ft)		3135		2810	317	753
Turn Bay Length (ft)	350		500			
Base Capacity (vph)	161	2307	158	2031	288	285
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.79	0.25	0.63	0.29	0.48

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

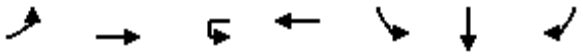


Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	30	105	1546	0	14	0	863	57	0	0	0	193
Future Volume (vph)	30	105	1546	0	14	0	863	57	0	0	0	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5		6.5		6.5					6.5
Lane Util. Factor		1.00	0.95		1.00		0.95					1.00
Frt		1.00	1.00		1.00		0.99					1.00
Flt Protected		0.95	1.00		0.95		1.00					0.95
Satd. Flow (prot)		1770	3539		1719		3398					1770
Flt Permitted		0.95	1.00		0.95		1.00					0.95
Satd. Flow (perm)		1770	3539		1719		3398					1770
Peak-hour factor, PHF	0.60	0.86	0.92	0.92	0.65	0.25	0.95	0.75	0.92	0.92	0.92	0.75
Adj. Flow (vph)	50	122	1680	0	22	0	908	76	0	0	0	257
RTOR Reduction (vph)	0	0	0	0	0	0	5	0	0	0	0	0
Lane Group Flow (vph)	0	172	1680	0	22	0	979	0	0	0	0	257
Heavy Vehicles (%)	2%	2%	2%	2%	5%	5%	5%	5%	2%	2%	2%	2%
Turn Type	Prot	Prot	NA		Prot		NA					Prot
Protected Phases	7	7	4		3		8					6
Permitted Phases												
Actuated Green, G (s)		10.5	76.8		4.2		70.5					14.5
Effective Green, g (s)		10.5	76.8		4.2		70.5					14.5
Actuated g/C Ratio		0.09	0.67		0.04		0.61					0.13
Clearance Time (s)		6.5	6.5		6.5		6.5					6.5
Vehicle Extension (s)		3.0	3.0		3.0		3.0					3.0
Lane Grp Cap (vph)		161	2363		62		2083					223
v/s Ratio Prot		c0.10	c0.47		0.01		c0.29					c0.15
v/s Ratio Perm												
v/c Ratio		1.07	0.71		0.35		0.47					1.15
Uniform Delay, d1		52.2	12.1		54.1		12.1					50.2
Progression Factor		0.69	1.73		1.27		1.75					1.00
Incremental Delay, d2		74.9	1.1		3.3		0.7					107.5
Delay (s)		110.9	22.1		71.8		21.9					157.8
Level of Service		F	C		E		C					F
Approach Delay (s)			30.3				23.0			0.0		
Approach LOS			C				C			A		

Intersection Summary			
HCM 2000 Control Delay	45.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	71.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	0	306
Future Volume (vph)	0	306
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	4.0	6.5
Lane Util. Factor	1.00	1.00
Frt	0.85	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	0	1583
Flt Permitted	1.00	1.00
Satd. Flow (perm)	0	1583
Peak-hour factor, PHF	0.92	0.83
Adj. Flow (vph)	0	369
RTOR Reduction (vph)	37	137
Lane Group Flow (vph)	0	195
Heavy Vehicles (%)	2%	2%
Turn Type		Perm
Protected Phases		
Permitted Phases		6
Actuated Green, G (s)	0.0	14.5
Effective Green, g (s)	0.0	14.5
Actuated g/C Ratio	0.00	0.13
Clearance Time (s)		6.5
Vehicle Extension (s)		3.0
Lane Grp Cap (vph)	0	199
v/s Ratio Prot		
v/s Ratio Perm		0.12
v/c Ratio	0.00	0.98
Uniform Delay, d1	57.5	50.1
Progression Factor	1.00	1.00
Incremental Delay, d2	0.0	58.5
Delay (s)	57.5	108.6
Level of Service	E	F
Approach Delay (s)	125.8	
Approach LOS	F	

Intersection Summary



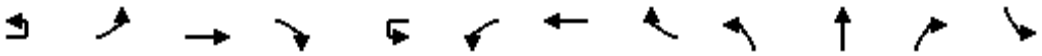
Lane Group	EBL	EBT	WBU	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	172	1680	22	984	257	37	332
v/c Ratio	1.07	0.68	0.19	0.47	1.15	0.17	0.99
Control Delay	112.7	20.9	66.1	21.9	152.6	0.0	73.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	112.7	20.9	66.1	21.9	152.6	0.0	73.4
Queue Length 50th (ft)	~142	301	17	285	~224	0	137
Queue Length 95th (ft)	m#217	609	30	278	#297	0	#273
Internal Link Dist (ft)		2810		4715		721	
Turn Bay Length (ft)	350		400				10
Base Capacity (vph)	161	2483	156	2087	223	218	336
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.07	0.68	0.14	0.47	1.15	0.17	0.99

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

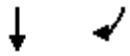
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	13	0	1589	124	2	39	861	0	60	0	61	0
Future Volume (vph)	13	0	1589	124	2	39	861	0	60	0	61	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5		6.5			6.5	6.5		6.5	4.0	6.5	
Lane Util. Factor	1.00		0.95			1.00	0.95		1.00	1.00	1.00	
Frt	1.00		0.99			1.00	1.00		1.00	0.85	0.85	
Flt Protected	0.95		1.00			0.95	1.00		0.95	1.00	1.00	
Satd. Flow (prot)	1770		3496			1736	3471		1752	0	1568	
Flt Permitted	0.95		1.00			0.95	1.00		0.95	1.00	1.00	
Satd. Flow (perm)	1770		3496			1736	3471		1752	0	1568	
Peak-hour factor, PHF	0.60	0.92	0.93	0.82	0.50	0.84	0.98	0.92	0.86	0.92	0.81	0.92
Adj. Flow (vph)	22	0	1709	151	4	46	879	0	70	0	75	0
RTOR Reduction (vph)	0	0	5	0	0	0	0	0	0	8	61	0
Lane Group Flow (vph)	22	0	1855	0	0	50	879	0	70	0	6	0
Heavy Vehicles (%)	2%	2%	2%	2%	4%	4%	4%	4%	3%	3%	3%	2%
Turn Type	Prot		NA		Prot	Prot	NA		Prot		Perm	
Protected Phases	7		4		3	3	8		2			
Permitted Phases											2	
Actuated Green, G (s)	4.2		77.7			7.3	80.8		10.5	0.0	10.5	
Effective Green, g (s)	4.2		77.7			7.3	80.8		10.5	0.0	10.5	
Actuated g/C Ratio	0.04		0.68			0.06	0.70		0.09	0.00	0.09	
Clearance Time (s)	6.5		6.5			6.5	6.5		6.5		6.5	
Vehicle Extension (s)	3.0		3.0			3.0	3.0		3.0		3.0	
Lane Grp Cap (vph)	64		2362			110	2438		159	0	143	
v/s Ratio Prot	0.01		c0.53			0.03	c0.25		c0.04			
v/s Ratio Perm											0.00	
v/c Ratio	0.34		0.79			0.45	0.36		0.44	0.00	0.04	
Uniform Delay, d1	54.1		12.9			51.9	6.8		49.5	57.5	47.7	
Progression Factor	0.93		0.84			1.26	0.71		1.00	1.00	1.00	
Incremental Delay, d2	2.1		1.8			2.7	0.4		8.6	0.0	0.6	
Delay (s)	52.2		12.6			68.3	5.2		58.1	57.5	48.2	
Level of Service	D		B			E	A		E	E	D	
Approach Delay (s)			13.1				8.6			53.5		
Approach LOS			B				A			D		

Intersection Summary			
HCM 2000 Control Delay	13.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	62.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	0	0
Future Volume (vph)	0	0
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	0	0
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	0	0
Heavy Vehicles (%)	2%	2%
Turn Type		
Protected Phases		
Permitted Phases		
Actuated Green, G (s)		
Effective Green, g (s)		
Actuated g/C Ratio		
Clearance Time (s)		
Vehicle Extension (s)		
Lane Grp Cap (vph)		
v/s Ratio Prot		
v/s Ratio Perm		
v/c Ratio		
Uniform Delay, d1		
Progression Factor		
Incremental Delay, d2		
Delay (s)		
Level of Service		
Approach Delay (s)	0.0	
Approach LOS	A	

Intersection Summary

Lane Group	EBU	EBT	WBL	WBT	NBL	NBT	NBR
Lane Group Flow (vph)	22	1860	50	879	70	8	67
v/c Ratio	0.18	0.77	0.40	0.34	0.44	0.04	0.24
Control Delay	48.0	12.9	71.9	4.9	58.8	0.0	1.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.0	12.9	71.9	4.9	58.8	0.0	1.9
Queue Length 50th (ft)	15	385	40	38	50	0	0
Queue Length 95th (ft)	m20	m417	m76	105	93	0	0
Internal Link Dist (ft)		4715		2272		440	
Turn Bay Length (ft)	350		350				10
Base Capacity (vph)	161	2407	158	2556	159	218	285
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.77	0.32	0.34	0.44	0.04	0.24

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	45	1604	19	3	4	856	32	5	21	15	28	15
Future Volume (vph)	45	1604	19	3	4	856	32	5	21	15	28	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5			6.5	6.5			6.5			6.5
Lane Util. Factor	1.00	0.95			1.00	0.95			1.00			1.00
Frt	1.00	1.00			1.00	0.99			0.95			0.92
Flt Protected	0.95	1.00			0.95	1.00			0.99			0.99
Satd. Flow (prot)	1770	3534			1736	3447			1734			1662
Flt Permitted	0.95	1.00			0.95	1.00			0.85			0.90
Satd. Flow (perm)	1770	3534			1736	3447			1480			1523
Peak-hour factor, PHF	0.67	0.90	1.00	0.38	0.33	0.94	0.72	0.38	0.71	0.58	0.75	0.88
Adj. Flow (vph)	67	1782	19	8	12	911	44	13	30	26	37	17
RTOR Reduction (vph)	0	1	0	0	0	3	0	0	19	0	0	41
Lane Group Flow (vph)	67	1800	0	0	20	952	0	0	50	0	0	84
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%	4%	3%	3%	3%	4%	4%
Turn Type	Prot	NA		Prot	Prot	NA		Perm	NA		Perm	NA
Protected Phases	7	4		3	3	8			2			6
Permitted Phases								2			6	
Actuated Green, G (s)	11.0	81.7			3.3	74.0			10.5			10.5
Effective Green, g (s)	11.0	81.7			3.3	74.0			10.5			10.5
Actuated g/C Ratio	0.10	0.71			0.03	0.64			0.09			0.09
Clearance Time (s)	6.5	6.5			6.5	6.5			6.5			6.5
Vehicle Extension (s)	3.0	3.0			3.0	3.0			3.0			3.0
Lane Grp Cap (vph)	169	2510			49	2218			135			139
v/s Ratio Prot	0.04	c0.51			0.01	c0.28						
v/s Ratio Perm									0.03			c0.06
v/c Ratio	0.40	0.72			0.41	0.43			0.37			0.61
Uniform Delay, d1	48.9	9.8			54.9	10.1			49.1			50.3
Progression Factor	0.97	1.23			1.00	1.00			1.00			1.00
Incremental Delay, d2	1.0	1.2			5.5	0.6			7.6			18.0
Delay (s)	48.6	13.3			60.4	10.7			56.8			68.3
Level of Service	D	B			E	B			E			E
Approach Delay (s)		14.6				11.7			56.8			68.3
Approach LOS		B				B			E			E

Intersection Summary			
HCM 2000 Control Delay	16.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	66.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

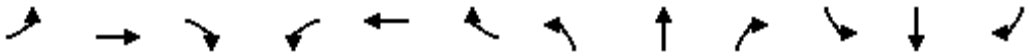
Movement	SBR
Lane Configurations	
Traffic Volume (vph)	41
Future Volume (vph)	41
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.58
Adj. Flow (vph)	71
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Heavy Vehicles (%)	4%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	67	1801	20	955	69	125
v/c Ratio	0.46	0.68	0.19	0.41	0.45	0.70
Control Delay	55.6	12.3	55.0	9.5	45.8	53.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.6	12.3	55.0	9.5	45.8	53.3
Queue Length 50th (ft)	50	281	14	164	34	58
Queue Length 95th (ft)	m59	321	14	206	59	#139
Internal Link Dist (ft)		2272		1581	712	348
Turn Bay Length (ft)	450		425			
Base Capacity (vph)	161	2630	158	2338	154	179
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.68	0.13	0.41	0.45	0.70

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

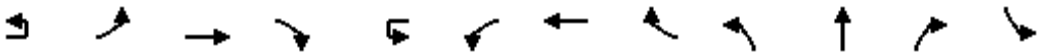


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	3	192	0	2	5	113	40	2	271	0
Future Volume (Veh/h)	0	0	3	192	0	2	5	113	40	2	271	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.25	0.71	0.92	0.50	0.50	0.63	0.70	0.25	0.65	0.92
Hourly flow rate (vph)	0	0	12	270	0	4	10	179	57	8	417	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								801				
pX, platoon unblocked												
vC, conflicting volume	664	689	417	672	660	208	417			236		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	664	689	417	672	660	208	417			236		
tC, single (s)	8.1	7.5	7.2	7.1	6.5	6.2	4.2			4.1		
tC, 2 stage (s)												
tF (s)	4.4	4.9	4.2	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	100	100	97	24	100	100	99			99		
cM capacity (veh/h)	264	265	470	356	377	833	1090			1331		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	12	274	246	425
Volume Left	0	270	10	8
Volume Right	12	4	57	0
cSH	470	359	1090	1331
Volume to Capacity	0.03	0.76	0.01	0.01
Queue Length 95th (ft)	2	154	1	0
Control Delay (s)	12.9	41.1	0.4	0.2
Lane LOS	B	E	A	A
Approach Delay (s)	12.9	41.1	0.4	0.2
Approach LOS	B	E		

Intersection Summary				
Average Delay	12.1			
Intersection Capacity Utilization	39.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Capacity Analysis
Full Development AM Peak Hour
With Dean Parkway Intersection Improvements

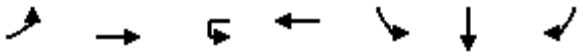


Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	24	345	642	0	4	0	1369	187	0	0	0	66
Future Volume (vph)	24	345	642	0	4	0	1369	187	0	0	0	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5		6.5		6.5					6.5
Lane Util. Factor		1.00	0.95		1.00		0.95					1.00
Frt		1.00	1.00		1.00		0.98					1.00
Flt Protected		0.95	1.00		0.95		1.00					0.95
Satd. Flow (prot)		1671	3343		1736		3409					1543
Flt Permitted		0.95	1.00		0.95		1.00					0.95
Satd. Flow (perm)		1671	3343		1736		3409					1543
Peak-hour factor, PHF	0.52	0.92	0.92	0.92	0.33	0.92	0.92	0.92	0.92	0.92	0.92	0.80
Adj. Flow (vph)	46	375	698	0	12	0	1488	203	0	0	0	82
RTOR Reduction (vph)	0	0	0	0	0	0	9	0	0	0	0	0
Lane Group Flow (vph)	0	421	698	0	12	0	1682	0	0	0	0	83
Heavy Vehicles (%)	8%	8%	8%	2%	4%	4%	4%	4%	2%	2%	2%	17%
Turn Type	Prot	Prot	NA		Prot		NA					Prot
Protected Phases	7	7	4		3		8					6
Permitted Phases												
Actuated Green, G (s)		30.7	87.0		1.0		57.3					7.5
Effective Green, g (s)		30.7	87.0		1.0		57.3					7.5
Actuated g/C Ratio		0.27	0.76		0.01		0.50					0.07
Clearance Time (s)		6.5	6.5		6.5		6.5					6.5
Vehicle Extension (s)		3.0	3.0		3.0		3.0					3.0
Lane Grp Cap (vph)		446	2529		15		1698					100
v/s Ratio Prot		c0.25	0.21		0.01		c0.49					c0.05
v/s Ratio Perm												
v/c Ratio		0.94	0.28		0.80		0.99					0.83
Uniform Delay, d1		41.3	4.3		56.9		28.6					53.1
Progression Factor		1.21	0.69		0.99		0.93					1.00
Incremental Delay, d2		28.3	0.2		111.9		17.1					52.2
Delay (s)		78.2	3.2		168.3		43.5					105.3
Level of Service		E	A		F		D					F
Approach Delay (s)			31.4				44.4			0.0		
Approach LOS			C				D			A		

Intersection Summary			
HCM 2000 Control Delay	41.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	86.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	0	99
Future Volume (vph)	0	99
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	4.0	6.5
Lane Util. Factor	1.00	1.00
Frt	0.85	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	0	1380
Flt Permitted	1.00	1.00
Satd. Flow (perm)	0	1380
Peak-hour factor, PHF	0.92	0.81
Adj. Flow (vph)	0	122
RTOR Reduction (vph)	12	103
Lane Group Flow (vph)	0	7
Heavy Vehicles (%)	17%	17%
Turn Type		Perm
Protected Phases		
Permitted Phases		6
Actuated Green, G (s)	0.0	7.5
Effective Green, g (s)	0.0	7.5
Actuated g/C Ratio	0.00	0.07
Clearance Time (s)		6.5
Vehicle Extension (s)		3.0
Lane Grp Cap (vph)	0	90
v/s Ratio Prot		
v/s Ratio Perm		0.01
v/c Ratio	0.00	0.08
Uniform Delay, d1	57.5	50.5
Progression Factor	1.00	1.00
Incremental Delay, d2	0.0	1.7
Delay (s)	57.5	52.2
Level of Service	E	D
Approach Delay (s)	74.0	
Approach LOS	E	

Intersection Summary

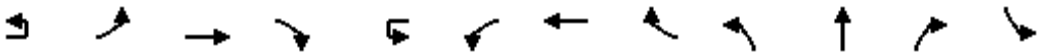


Lane Group	EBL	EBT	WBU	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	421	698	12	1691	83	12	110
v/c Ratio	0.94	0.26	0.16	0.99	0.83	0.06	0.47
Control Delay	78.3	2.4	56.5	43.8	106.3	0.0	9.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	78.3	2.4	56.5	43.8	106.3	0.0	9.1
Queue Length 50th (ft)	304	6	9	685	62	0	0
Queue Length 95th (ft)	#520	10	12	#845	#129	0	8
Internal Link Dist (ft)		2810		4715		721	
Turn Bay Length (ft)	550		400				200
Base Capacity (vph)	446	2680	75	1707	100	218	236
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.94	0.26	0.16	0.99	0.83	0.06	0.47

Intersection Summary

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

Capacity Analysis
Full Development PM Peak Hour
With Dean Parkway Intersection Improvements

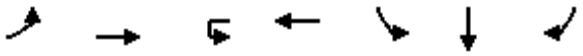


Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	30	105	1546	0	14	0	863	57	0	0	0	193
Future Volume (vph)	30	105	1546	0	14	0	863	57	0	0	0	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5		6.5		6.5					6.5
Lane Util. Factor		1.00	0.95		1.00		0.95					1.00
Frt		1.00	1.00		1.00		0.99					1.00
Flt Protected		0.95	1.00		0.95		1.00					0.95
Satd. Flow (prot)		1770	3539		1719		3398					1770
Flt Permitted		0.95	1.00		0.95		1.00					0.95
Satd. Flow (perm)		1770	3539		1719		3398					1770
Peak-hour factor, PHF	0.60	0.92	0.92	0.92	0.65	0.25	0.95	0.75	0.92	0.92	0.92	0.92
Adj. Flow (vph)	50	114	1680	0	22	0	908	76	0	0	0	210
RTOR Reduction (vph)	0	0	0	0	0	0	5	0	0	0	0	0
Lane Group Flow (vph)	0	164	1680	0	22	0	979	0	0	0	0	210
Heavy Vehicles (%)	2%	2%	2%	2%	5%	5%	5%	5%	2%	2%	2%	2%
Turn Type	Prot	Prot	NA		Prot		NA					Prot
Protected Phases	7	7	4		3		8					6
Permitted Phases												
Actuated Green, G (s)		15.3	70.8		2.2		57.7					22.5
Effective Green, g (s)		15.3	70.8		2.2		57.7					22.5
Actuated g/C Ratio		0.13	0.62		0.02		0.50					0.20
Clearance Time (s)		6.5	6.5		6.5		6.5					6.5
Vehicle Extension (s)		3.0	3.0		3.0		3.0					3.0
Lane Grp Cap (vph)		235	2178		32		1704					346
v/s Ratio Prot		0.09	c0.47		0.01		c0.29					c0.12
v/s Ratio Perm												
v/c Ratio		0.70	0.77		0.69		0.57					0.61
Uniform Delay, d1		47.6	16.2		56.1		20.1					42.2
Progression Factor		0.63	1.75		1.14		1.28					1.00
Incremental Delay, d2		5.5	1.7		45.5		1.4					7.7
Delay (s)		35.4	30.0		109.3		27.0					49.9
Level of Service		D	C		F		C					D
Approach Delay (s)			30.5				28.8			0.0		
Approach LOS			C				C			A		

Intersection Summary			
HCM 2000 Control Delay	32.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	71.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	0	306
Future Volume (vph)	0	306
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	4.0	6.5
Lane Util. Factor	1.00	1.00
Frt	0.85	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	0	1583
Flt Permitted	1.00	1.00
Satd. Flow (perm)	0	1583
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	0	333
RTOR Reduction (vph)	33	216
Lane Group Flow (vph)	0	84
Heavy Vehicles (%)	2%	2%
Turn Type		Perm
Protected Phases		
Permitted Phases		6
Actuated Green, G (s)	0.0	22.5
Effective Green, g (s)	0.0	22.5
Actuated g/C Ratio	0.00	0.20
Clearance Time (s)		6.5
Vehicle Extension (s)		3.0
Lane Grp Cap (vph)	0	309
v/s Ratio Prot		
v/s Ratio Perm		0.05
v/c Ratio	0.00	0.27
Uniform Delay, d1	57.5	39.3
Progression Factor	1.00	1.00
Incremental Delay, d2	0.0	2.1
Delay (s)	57.5	41.4
Level of Service	E	D
Approach Delay (s)	45.7	
Approach LOS	D	

Intersection Summary



Lane Group	EBL	EBT	WBU	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	164	1680	22	984	210	33	300
v/c Ratio	0.70	0.73	0.27	0.58	0.61	0.15	0.57
Control Delay	39.9	27.3	68.3	27.7	50.6	0.0	11.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.9	27.3	68.3	27.7	50.6	0.0	11.8
Queue Length 50th (ft)	105	488	17	326	143	0	19
Queue Length 95th (ft)	m141	736	31	329	225	0	102
Internal Link Dist (ft)		2810		4715		721	
Turn Bay Length (ft)	550		400				200
Base Capacity (vph)	289	2298	82	1709	346	218	526
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.73	0.27	0.58	0.61	0.15	0.57

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Capacity Analysis
Full Development AM Peak Hour
With New Access Road and Intersection Improvements

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	165	807	0	13	9	1432	25	3	5	24	36	7
Future Volume (vph)	165	807	0	13	9	1432	25	3	5	24	36	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5			6.5	6.5			6.5			6.5
Lane Util. Factor	1.00	0.95			1.00	0.95			1.00			1.00
Frt	1.00	1.00			1.00	1.00			0.90			0.90
Flt Protected	0.95	1.00			0.95	1.00			1.00			0.99
Satd. Flow (prot)	1687	3374			1703	3391			1537			1641
Flt Permitted	0.95	1.00			0.95	1.00			0.97			0.92
Satd. Flow (perm)	1687	3374			1703	3391			1500			1519
Peak-hour factor, PHF	0.90	0.85	0.25	0.60	0.50	0.92	0.55	0.75	0.63	0.75	0.93	0.88
Adj. Flow (vph)	183	949	0	22	18	1557	45	4	8	32	39	8
RTOR Reduction (vph)	0	0	0	0	0	2	0	0	27	0	0	94
Lane Group Flow (vph)	183	949	0	0	40	1600	0	0	17	0	0	94
Heavy Vehicles (%)	7%	7%	7%	6%	6%	6%	6%	11%	11%	11%	3%	3%
Turn Type	Prot	NA		Prot	Prot	NA		Perm	NA		Perm	NA
Protected Phases	7	4		3	3	8			2			6
Permitted Phases								2			6	
Actuated Green, G (s)	18.1	72.3			5.7	59.9			17.5			17.5
Effective Green, g (s)	18.1	72.3			5.7	59.9			17.5			17.5
Actuated g/C Ratio	0.16	0.63			0.05	0.52			0.15			0.15
Clearance Time (s)	6.5	6.5			6.5	6.5			6.5			6.5
Vehicle Extension (s)	3.0	3.0			3.0	3.0			3.0			3.0
Lane Grp Cap (vph)	265	2121			84	1766			228			231
v/s Ratio Prot	c0.11	0.28			0.02	c0.47						
v/s Ratio Perm									0.01			c0.06
v/c Ratio	0.69	0.45			0.48	0.91			0.07			0.41
Uniform Delay, d1	45.8	11.0			53.2	25.0			41.8			44.1
Progression Factor	0.82	0.99			1.43	0.34			1.00			1.00
Incremental Delay, d2	6.8	0.6			1.3	2.8			0.6			5.2
Delay (s)	44.5	11.6			77.6	11.4			42.4			49.3
Level of Service	D	B			E	B			D			D
Approach Delay (s)		16.9				13.0			42.4			49.3
Approach LOS		B				B			D			D

Intersection Summary			
HCM 2000 Control Delay	17.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	82.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	127
Future Volume (vph)	127
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.90
Adj. Flow (vph)	141
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Heavy Vehicles (%)	3%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	183	949	40	1602	44	188
v/c Ratio	0.81	0.43	0.33	0.87	0.17	0.58
Control Delay	64.4	11.5	74.2	10.1	21.1	27.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.4	11.5	74.2	10.1	21.1	27.0
Queue Length 50th (ft)	134	151	32	124	8	52
Queue Length 95th (ft)	#242	207	m32	m123	22	123
Internal Link Dist (ft)		3135		2810	317	680
Turn Bay Length (ft)	350		500			
Base Capacity (vph)	227	2197	199	1845	255	325
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.43	0.20	0.87	0.17	0.58

Intersection Summary

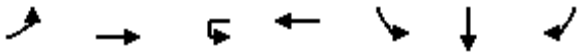
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	24	207	645	0	4	0	1379	177	0	0	0	63
Future Volume (vph)	24	207	645	0	4	0	1379	177	0	0	0	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5		6.5		6.5					6.5
Lane Util. Factor		1.00	0.95		1.00		0.95					1.00
Frt		1.00	1.00		1.00		0.98					1.00
Flt Protected		0.95	1.00		0.95		1.00					0.95
Satd. Flow (prot)		1671	3343		1736		3412					1543
Flt Permitted		0.95	1.00		0.95		1.00					0.95
Satd. Flow (perm)		1671	3343		1736		3412					1543
Peak-hour factor, PHF	0.52	0.92	0.92	0.92	0.33	0.92	0.92	0.92	0.92	0.92	0.92	0.80
Adj. Flow (vph)	46	225	701	0	12	0	1499	192	0	0	0	79
RTOR Reduction (vph)	0	0	0	0	0	0	9	0	0	0	0	0
Lane Group Flow (vph)	0	271	701	0	12	0	1682	0	0	0	0	79
Heavy Vehicles (%)	8%	8%	8%	2%	4%	4%	4%	4%	2%	2%	2%	17%
Turn Type	Prot	Prot	NA		Prot		NA					Prot
Protected Phases	7	7	4		3		8					6
Permitted Phases												
Actuated Green, G (s)		28.5	82.3		1.7		55.5					11.5
Effective Green, g (s)		28.5	82.3		1.7		55.5					11.5
Actuated g/C Ratio		0.25	0.72		0.01		0.48					0.10
Clearance Time (s)		6.5	6.5		6.5		6.5					6.5
Vehicle Extension (s)		3.0	3.0		3.0		3.0					3.0
Lane Grp Cap (vph)		414	2392		25		1646					154
v/s Ratio Prot		c0.16	0.21		0.01		c0.49					c0.05
v/s Ratio Perm												
v/c Ratio		0.65	0.29		0.48		1.02					0.51
Uniform Delay, d1		38.8	5.9		56.2		29.8					49.1
Progression Factor		1.20	0.95		0.93		0.87					1.00
Incremental Delay, d2		7.3	0.3		10.7		25.2					11.7
Delay (s)		53.8	5.9		63.2		51.1					60.8
Level of Service		D	A		E		D					E
Approach Delay (s)			19.2				51.2			0.0		
Approach LOS			B				D			A		

Intersection Summary			
HCM 2000 Control Delay	40.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	77.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	0	59
Future Volume (vph)	0	59
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	4.0	6.5
Lane Util. Factor	1.00	1.00
Frt	0.85	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	0	1380
Flt Permitted	1.00	1.00
Satd. Flow (perm)	0	1380
Peak-hour factor, PHF	0.92	0.81
Adj. Flow (vph)	0	73
RTOR Reduction (vph)	7	59
Lane Group Flow (vph)	0	7
Heavy Vehicles (%)	17%	17%
Turn Type		Perm
Protected Phases		
Permitted Phases		6
Actuated Green, G (s)	0.0	11.5
Effective Green, g (s)	0.0	11.5
Actuated g/C Ratio	0.00	0.10
Clearance Time (s)		6.5
Vehicle Extension (s)		3.0
Lane Grp Cap (vph)	0	138
v/s Ratio Prot		
v/s Ratio Perm		0.00
v/c Ratio	0.00	0.05
Uniform Delay, d1	57.5	46.8
Progression Factor	1.00	1.00
Incremental Delay, d2	0.0	0.7
Delay (s)	57.5	47.5
Level of Service	E	D
Approach Delay (s)	54.8	
Approach LOS	D	

Intersection Summary

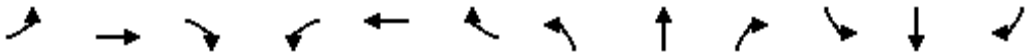


Lane Group	EBL	EBT	WBU	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	271	701	12	1691	79	7	66
v/c Ratio	0.65	0.28	0.12	1.02	0.51	0.03	0.24
Control Delay	54.7	4.8	49.5	51.5	61.6	0.0	2.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.7	4.8	49.5	51.5	61.6	0.0	2.0
Queue Length 50th (ft)	194	97	9	~715	56	0	0
Queue Length 95th (ft)	303	35	12	#867	95	0	0
Internal Link Dist (ft)		2810		4715		721	
Turn Bay Length (ft)	550		400				200
Base Capacity (vph)	414	2543	128	1655	154	218	279
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.65	0.28	0.09	1.02	0.51	0.03	0.24

Intersection Summary

~ 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.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	89	52	8	44	17	0	3	307	46	0	67	26
Future Volume (Veh/h)	89	52	8	44	17	0	3	307	46	0	67	26
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.25	0.64	0.92	0.92	0.92	0.94	0.67	0.92	0.75	0.92
Hourly flow rate (vph)	97	57	32	69	18	0	3	327	69	0	89	28
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								801				
pX, platoon unblocked												
vC, conflicting volume	480	505	103	531	484	362	117			396		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	480	505	103	531	484	362	117			396		
tC, single (s)	7.1	6.5	6.2	7.6	7.0	6.7	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	4.0	4.5	3.8	2.2			2.2		
p0 queue free %	80	88	97	80	96	100	100			100		
cM capacity (veh/h)	479	469	952	343	418	588	1465			1146		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	186	87	399	117
Volume Left	97	69	3	0
Volume Right	32	0	69	28
cSH	520	356	1465	1146
Volume to Capacity	0.36	0.24	0.00	0.00
Queue Length 95th (ft)	40	24	0	0
Control Delay (s)	15.7	18.3	0.1	0.0
Lane LOS	C	C	A	
Approach Delay (s)	15.7	18.3	0.1	0.0
Approach LOS	C	C		

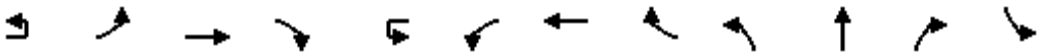
Intersection Summary				
Average Delay	5.8			
Intersection Capacity Utilization	36.8%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	43	5	47	148	10	127
Future Volume (Veh/h)	43	5	47	148	10	127
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.85	0.85	0.90	0.90	0.85	0.90
Hourly flow rate (vph)	51	6	52	164	12	141
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			760			
pX, platoon unblocked						
vC, conflicting volume	299	134			216	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	299	134			216	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	93	99			99	
cM capacity (veh/h)	686	915			1354	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	57	216	153
Volume Left	51	0	12
Volume Right	6	164	0
cSH	705	1700	1354
Volume to Capacity	0.08	0.13	0.01
Queue Length 95th (ft)	7	0	1
Control Delay (s)	10.6	0.0	0.7
Lane LOS	B		A
Approach Delay (s)	10.6	0.0	0.7
Approach LOS	B		

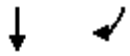
Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	24.9%	ICU Level of Service	A
Analysis Period (min)	15		

Capacity Analysis
Full Development PM Peak Hour
With New Access Road and Intersection Improvements



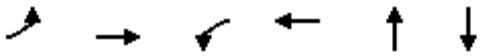
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	1	112	1609	6	16	11	1039	30	3	23	34	31
Future Volume (vph)	1	112	1609	6	16	11	1039	30	3	23	34	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5			6.5	6.5			6.5		
Lane Util. Factor		1.00	0.95			1.00	0.95			1.00		
Frt		1.00	1.00			1.00	0.99			0.93		
Flt Protected		0.95	1.00			0.95	1.00			1.00		
Satd. Flow (prot)		1770	3535			1736	3452			1726		
Flt Permitted		0.95	1.00			0.95	1.00			0.93		
Satd. Flow (perm)		1770	3535			1736	3452			1618		
Peak-hour factor, PHF	0.25	0.90	0.91	0.42	0.63	0.75	0.93	0.71	0.38	0.69	0.79	0.85
Adj. Flow (vph)	4	124	1768	14	25	15	1117	42	8	33	43	36
RTOR Reduction (vph)	0	0	0	0	0	0	2	0	0	33	0	0
Lane Group Flow (vph)	0	128	1782	0	0	40	1157	0	0	51	0	0
Heavy Vehicles (%)	2%	2%	2%	2%	4%	4%	4%	4%	2%	2%	2%	2%
Turn Type	Prot	Prot	NA		Prot	Prot	NA		Perm	NA		Perm
Protected Phases	7	7	4		3	3	8			2		
Permitted Phases									2			6
Actuated Green, G (s)		13.1	69.4			5.6	61.9			20.5		
Effective Green, g (s)		13.1	69.4			5.6	61.9			20.5		
Actuated g/C Ratio		0.11	0.60			0.05	0.54			0.18		
Clearance Time (s)		6.5	6.5			6.5	6.5			6.5		
Vehicle Extension (s)		3.0	3.0			3.0	3.0			3.0		
Lane Grp Cap (vph)		201	2133			84	1858			288		
v/s Ratio Prot		0.07	c0.50			0.02	c0.34					
v/s Ratio Perm										0.03		
v/c Ratio		0.64	0.84			0.48	0.62			0.18		
Uniform Delay, d1		48.7	18.2			53.3	18.4			40.1		
Progression Factor		1.06	1.27			0.96	1.16			1.00		
Incremental Delay, d2		3.2	2.0			3.5	1.3			1.3		
Delay (s)		54.7	25.1			54.6	22.7			41.4		
Level of Service		D	C			D	C			D		
Approach Delay (s)			27.1				23.8			41.4		
Approach LOS			C				C			D		

Intersection Summary			
HCM 2000 Control Delay	28.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	85.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	15	185
Future Volume (vph)	15	185
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	6.5	
Lane Util. Factor	1.00	
Frt	0.90	
Flt Protected	0.99	
Satd. Flow (prot)	1658	
Flt Permitted	0.95	
Satd. Flow (perm)	1578	
Peak-hour factor, PHF	0.58	0.90
Adj. Flow (vph)	26	206
RTOR Reduction (vph)	104	0
Lane Group Flow (vph)	164	0
Heavy Vehicles (%)	2%	2%
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	20.5	
Effective Green, g (s)	20.5	
Actuated g/C Ratio	0.18	
Clearance Time (s)	6.5	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	281	
v/s Ratio Prot		
v/s Ratio Perm	c0.10	
v/c Ratio	0.58	
Uniform Delay, d1	43.3	
Progression Factor	1.00	
Incremental Delay, d2	8.5	
Delay (s)	51.9	
Level of Service	D	
Approach Delay (s)	51.9	
Approach LOS	D	

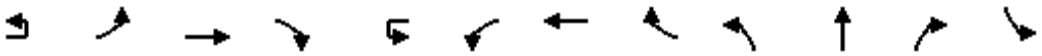
Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	128	1782	40	1159	84	268
v/c Ratio	0.80	0.80	0.33	0.60	0.26	0.70
Control Delay	72.4	24.6	57.2	18.3	25.5	33.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.4	24.6	57.2	18.3	25.5	33.5
Queue Length 50th (ft)	88	463	31	190	28	98
Queue Length 95th (ft)	m105	554	m54	339	49	78
Internal Link Dist (ft)		3135		2810	317	580
Turn Bay Length (ft)	350		500			
Base Capacity (vph)	161	2215	158	1939	321	385
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.80	0.80	0.25	0.60	0.26	0.70

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

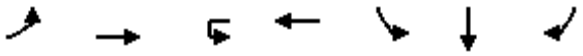


Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	30	63	1556	0	14	0	866	54	0	0	0	183
Future Volume (vph)	30	63	1556	0	14	0	866	54	0	0	0	183
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	6.5		6.5		6.5					6.5
Lane Util. Factor		1.00	0.95		1.00		0.95					1.00
Frt		1.00	1.00		1.00		0.99					1.00
Flt Protected		0.95	1.00		0.95		1.00					0.95
Satd. Flow (prot)		1770	3539		1719		3400					1770
Flt Permitted		0.95	1.00		0.95		1.00					0.95
Satd. Flow (perm)		1770	3539		1719		3400					1770
Peak-hour factor, PHF	0.60	0.92	0.92	0.92	0.65	0.25	0.95	0.75	0.92	0.92	0.92	0.90
Adj. Flow (vph)	50	68	1691	0	22	0	912	72	0	0	0	203
RTOR Reduction (vph)	0	0	0	0	0	0	5	0	0	0	0	0
Lane Group Flow (vph)	0	118	1691	0	22	0	979	0	0	0	0	203
Heavy Vehicles (%)	2%	2%	2%	2%	5%	5%	5%	5%	2%	2%	2%	2%
Turn Type	Prot	Prot	NA		Prot		NA					Prot
Protected Phases	7	7	4		3		8					6
Permitted Phases												
Actuated Green, G (s)		13.0	69.6		3.4		60.0					22.5
Effective Green, g (s)		13.0	69.6		3.4		60.0					22.5
Actuated g/C Ratio		0.11	0.61		0.03		0.52					0.20
Clearance Time (s)		6.5	6.5		6.5		6.5					6.5
Vehicle Extension (s)		3.0	3.0		3.0		3.0					3.0
Lane Grp Cap (vph)		200	2141		50		1773					346
v/s Ratio Prot		0.07	c0.48		0.01		c0.29					c0.11
v/s Ratio Perm												
v/c Ratio		0.59	0.79		0.44		0.55					0.59
Uniform Delay, d1		48.5	17.2		54.9		18.5					42.0
Progression Factor		0.62	1.78		1.14		1.29					1.00
Incremental Delay, d2		2.7	1.9		5.8		1.2					7.1
Delay (s)		32.9	32.5		68.6		25.1					49.1
Level of Service		C	C		E		C					D
Approach Delay (s)			32.5				26.1			0.0		
Approach LOS			C				C			A		

Intersection Summary			
HCM 2000 Control Delay	32.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	71.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	0	184
Future Volume (vph)	0	184
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	4.0	6.5
Lane Util. Factor	1.00	1.00
Frt	0.85	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	0	1583
Flt Permitted	1.00	1.00
Satd. Flow (perm)	0	1583
Peak-hour factor, PHF	0.92	0.90
Adj. Flow (vph)	0	204
RTOR Reduction (vph)	20	148
Lane Group Flow (vph)	0	36
Heavy Vehicles (%)	2%	2%
Turn Type		Perm
Protected Phases		
Permitted Phases		6
Actuated Green, G (s)	0.0	22.5
Effective Green, g (s)	0.0	22.5
Actuated g/C Ratio	0.00	0.20
Clearance Time (s)		6.5
Vehicle Extension (s)		3.0
Lane Grp Cap (vph)	0	309
v/s Ratio Prot		
v/s Ratio Perm		0.02
v/c Ratio	0.00	0.12
Uniform Delay, d1	57.5	38.1
Progression Factor	1.00	1.00
Incremental Delay, d2	0.0	0.8
Delay (s)	57.5	38.8
Level of Service	E	D
Approach Delay (s)	44.9	
Approach LOS	D	

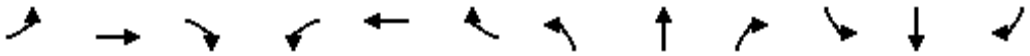
Intersection Summary



Lane Group	EBL	EBT	WBU	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	118	1691	22	984	203	20	184
v/c Ratio	0.59	0.75	0.21	0.55	0.59	0.09	0.40
Control Delay	37.4	30.3	62.4	25.9	49.8	0.0	8.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.4	30.3	62.4	25.9	49.8	0.0	8.5
Queue Length 50th (ft)	76	486	17	325	138	0	0
Queue Length 95th (ft)	m100	777	28	329	218	0	60
Internal Link Dist (ft)		2810		4715		721	
Turn Bay Length (ft)	550		400				200
Base Capacity (vph)	289	2261	127	1779	346	218	457
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.75	0.17	0.55	0.59	0.09	0.40

Intersection Summary

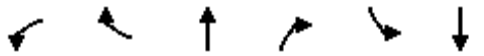
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	16	5	139	53	2	5	86	24	2	192	79
Future Volume (Veh/h)	27	16	5	139	53	2	5	86	24	2	192	79
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.71	0.92	0.50	0.50	0.63	0.70	0.25	0.65	0.92
Hourly flow rate (vph)	32	19	6	196	58	4	10	137	34	8	295	86
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								801				
pX, platoon unblocked												
vC, conflicting volume	561	545	338	544	571	154	381			171		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	561	545	338	544	571	154	381			171		
tC, single (s)	8.1	7.5	7.2	7.1	6.5	6.2	4.2			4.1		
tC, 2 stage (s)												
tF (s)	4.4	4.9	4.2	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	89	94	99	53	86	100	99			99		
cM capacity (veh/h)	282	329	528	421	424	892	1125			1406		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	57	258	181	389
Volume Left	32	196	10	8
Volume Right	6	4	34	86
cSH	312	425	1125	1406
Volume to Capacity	0.18	0.61	0.01	0.01
Queue Length 95th (ft)	16	98	1	0
Control Delay (s)	19.1	25.7	0.5	0.2
Lane LOS	C	D	A	A
Approach Delay (s)	19.1	25.7	0.5	0.2
Approach LOS	C	D		

Intersection Summary				
Average Delay	8.9			
Intersection Capacity Utilization	36.6%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	132	10	120	45	5	99
Future Volume (Veh/h)	132	10	120	45	5	99
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.85	0.90	0.85	0.85	0.90
Hourly flow rate (vph)	147	12	133	53	6	110
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			660			
pX, platoon unblocked						
vC, conflicting volume	282	160			186	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	282	160			186	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	79	99			100	
cM capacity (veh/h)	705	886			1388	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	159	186	116
Volume Left	147	0	6
Volume Right	12	53	0
cSH	716	1700	1388
Volume to Capacity	0.22	0.11	0.00
Queue Length 95th (ft)	21	0	0
Control Delay (s)	11.5	0.0	0.4
Lane LOS	B		A
Approach Delay (s)	11.5	0.0	0.4
Approach LOS	B		

Intersection Summary			
Average Delay	4.1		
Intersection Capacity Utilization	23.9%	ICU Level of Service	A
Analysis Period (min)	15		

APPENDIX B

Public Involvement

Meeting Minutes

BEH INDUSTRIAL PARK TRAFFIC OPTIMIZATION STUDY KICK OFF MEETING MINUTES

Location:	TEAMS virtual meeting
Date:	March 31, 2021
Time:	9:00 AM
Attendees:	By video conference call Jody Binnix, Adam Cummings, Frank Robusto, Brian Pincelli, Zach Starke, Lorenzo Rotoli, Ed Flynn, and Tom Miller.

AGENDA AND DISCUSSION ITEMS

A kick off and coordination meeting was held for the Beh Study. Topics of discussion were as follows:

1. Welcome & Introductions
   - Introduced project team members and roles.
   - LaBella will prepare and distribute meeting minutes.
   - Adam and Jody will be point of contacts for the Town and GTC.
   - Lorenzo and Tom are points of contact for LaBella.
   - Steering Committee will provide oversight and study direction.
   - Study Goal - Support mobility, economic development goals, implementation and positioning for grants

2. Scope Overview & Schedule
   - Project scope has been compressed with a March start and November completion. Original proposal schedule was January to December.
   - Will require team collaboration and quick responses to maintain the new schedule.
   - Restated the study purpose and objective:

     Purpose - Identify physical and regulatory opportunities within the project area to improve mobility, access and safety, and provide recommendations for these areas.

     Objective - The study will support the continued growth and economic development of the project site by positioning it for future funding opportunities.

3. Community Participation Plan
   - Engagement can be virtual or in-person dependent on the most current Covid protocols.
   - A draft Public Participation Plan will be distributed to the Steering Committee for review.
   - GTC will provide info on public meeting platforms and can assist with social media and website hosting. GTC has been using www.publicinput.com for public viewing and chat features while the consultant team conducts a virtual meeting on Zoom / TEAMS.
   - Town of Ontario has facilities to hold safe & socially distanced in-person meetings if needed.
   - Town of Ontario official newspaper is the Times of Wayne County. There is no official radio station use something from Rochester TBD.

4. Inventory
    - NYSDOT provided Route 104 intersection plans and signal timings.
    - GTC provided the Route 104 Trail Corridor Trail plan.
    - Town provided Commerce Center plans and noted they have changed due to Intergrow facility.
    - LaBella has made a site field visit for item inventory.
    - LaBella has initiated traffic turning movement counts.
    - Town identified they are updating the Comprehensive Plan.
    - Technical Memo #1 (Inventory) is scheduled for the end of April.

5. Needs
    - LaBella will identify initial needs based on inventory and Steering Committee feedback.
    - LaBella has initiated assessment of physical, operational, and safety conditions.
    - Town will provide available expansion plans and concept road alignments for Optimax and Intergrow.
    - Technical Memo #2 (Needs) is scheduled for the end of June.
    - Public Meeting #1 is scheduled for mid-July.

6. Other
    - Identified current Comprehensive Plan update and GTC rail study.
    - Beh study will be integrated into Town's Comprehensive Plan. The Comp Plan is 50% complete and being done by MRB (contact is Matt Horn)
    - Beh study will also be integrated into a future GEIS (completed by Town) for expansion of the industrial park.
    - There are no traffic studies for any private development in Beh – Integrow, Optimax etc. Town Engineer will provide preliminary sketches for new access in the western portion of the site.
    - There are differing opinions on what the Route 104 corridor should be – lower speed with increased property access, or high-speed facility.
    - Traffic concerns at Route 104 & Dean Pkwy have been noted by Town & Beh businesses. NYSDOT performed study of the intersection (2019) and modified signal timings.
    - GTC & Fisher are working on study of the rail corridor – 90% complete. There is the potential for rail-oriented development on the west side of the site.
    - Preferred future Steering Committee meetings will be held on Wednesdays at 9:00 AM, but not the first week of the month.
    - Next steps:
        - Submit draft Community Participation Plan
        - Finalize inventory task
        - Technical Memo #1 – Inventory
        - Begin preparing for Public Meeting and surveys

7. Action Items
    - See action item table.

If there are any errors or significant omissions, please contact me at (585) 402-7041 or Lrotoli@labellapc.com. Please reply with comments within one week at which point these minutes will be considered final.

Respectfully Submitted by:

LaBella Associates, D.P.C.

Lorenzo Rotoli
Senior Project Manager

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NEW ACTION ITEMS	TASK OWNER(S)	DEADLINE	STATUS
1. Distribute draft Public Participation Plan	LaBella	4/2/21	In progress
2. Provide www.publicmeeting.com platform	GTC	3/31/21	Completed
3. Collect traffic counts	LaBella	4/9/21	In progress
4. Field inventory	LaBella	4/9/21	In progress
5. Technical Memo #1 (Inventory)	LaBella	4/30/21	Initiate
6. Provide Optimax and Intergrow expansion plans	Town	4/7/21	Initiate
7. Initiate Needs Assessment	LaBella	4/30/21	Pending
8. Request Comp Plan and Rail study	LaBella	4/7/21	Pending

OLD ACTION ITEMS	TASK OWNER(S)	DEADLINE	STATUS

BEH INDUSTRIAL PARK TRAFFIC OPTIMIZATION STUDY KICK OFF MEETING MINUTES

Location: TEAMS virtual meeting

Date: May 12, 2021

Time: 9:00 AM

Attendees: By video conference call Jody Binnix, Adam Cummings, Frank Robusto, Bill Riddell, Brian Pincelli, Zach Starke, Lorenzo Rotoli, Derik Kane, and Tom Miller.

AGENDA AND DISCUSSION ITEMS

Steering Committee meeting #2 was held for the Beh Study. Topics of discussion were as follows:

1. Welcome & Introductions
   - Introduced a new team member Derik Kane who is a planner for LaBella Associates.
   - Andrew Quinn from NYSDOT will be joining the project during the recommendations stage. Andrew is involved with NYSDOT projects in the adjacent Beh study area.

2. Scope Overview & Schedule
   - The Steering Committee was updated on the project schedule.
   - Technical Memo #1 – Existing Conditions Inventory was submitted on April 28th.
   - Next milestone is completion of Technical Memo #2 – Needs Assessment at the end of June.
   - Public Meeting #1 is tentatively scheduled for mid-July.

3. Community Participation Plan
   - The Public Participation Plan was updated in accordance with Steering Committee review comments for media outlets.
     - Times of Wayne County newspaper
     - WXXI-NPR radio
   - GTC will use www.publicinput.com public meeting platform and assist with social media and website hosting.

4. Inventory
   - LaBella provided a summary of Technical Memo #1 for Existing Conditions that was submitted on April 28th. Highlights include:
     - NYSDOT provided Route 104 intersection plans and signal timings.
     - GTC provided the Route 104 Trail Corridor Trail plan and OMID Strategic Plan.
     - Town provided various plans and studies. All had common theme to enhance the transportation system to support businesses and economic development.
     - LaBella collected traffic turning movement counts and adjusted counts for Covid based on historical volumes.

- Existing intersections were analyzed with all having an overall Level of Service (LOS) of "C" or better. Some individual left turn movements operate at LOS of "E" which is approximately 60 second delay.
- Crashes were just under 4 per year over a 6 year period at the Route 104/Dean Parkway intersection. Predominant accident types were rear end crashes and animal crashes.
- No pedestrian or bicycle facilities within the Beh Industrial Park. A minor number of workers have been observed walking on Timothy Lane.
- No on-street parking, but have private lots.
- No public transit on site.
- Identified existing infrastructure and conditions.
- Land use is zoned as industrial in current map and will be maintained in future map.
- Market trends show new developments and expansion at the Beh Industrial Park.
- Documented regulatory framework from the Town for street layout, street intersections, Cul-de-sacs, Roads, and Sidewalks.
- Identified wetlands and FEMA floodplains which includes Fourmile Creek. Future access road will be located to minimize impacts or avoid.

5. Needs Assessment
   - LaBella will build off of the existing inventory and Steering Committee feedback to initiate the Needs task.
   - Add future development from Optimax, Optipro, Intergrow, and Harbec.
   - Assessment of physical, operational, and safety conditions.
   - Identify future needs and opportunities.

6. Next Steps
   - LaBella to coordinate with GTC to provide technical data for www.publicinput.com site.
   - Coordinate with Town to establish a meeting with business owners to share study objectives and learn about expansion plans.
   - Develop a community survey.
   - Technical Memo #2 (Needs) is scheduled for the end of June.
   - Public Meeting #1 is scheduled for mid-July.

7. Miscellaneous/Other
   - Identify owners and responsible parties for the roadway network.
   - Intergrow is 50% complete with their Phase II expansion (Timothy Lane - west of facility).
   - Phase III will develop the south side of Timothy Lane.
   - Town halted plans to mill and resurface Dean Parkway until after completion of site expansion work for various businesses.
   - Town wants to explore site access across from Lincoln Road.
   - Frank Robusto wants to be involved in the business owner meetings.
   - Need to reach out to homeowners on County Line Road who will be impacted with a potential new access connection from Beh Industrial Park. Suggestion to use door handle fliers and/or fliers in their water bill mailings. Town can provide contact information for homeowners.
   - Add vehicle queuing lengths to traffic operation LOS tables to better understand traffic impacts.
   - Project's public surveys can be gathered using www.publicinput.com and Survey Monkey.

8. Action Items
   - See action item table.

If there are any errors or significant omissions, please contact me at (585) 402-7041 or Lrotoli@labellapc.com. Please reply with comments within one week at which point these minutes will be considered final.

Respectfully Submitted by:

LaBella Associates, D.P.C.

Lorenzo Rotoli
Senior Project Manager

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NEW ACTION ITEMS	TASK OWNER(S)	DEADLINE	STATUS
1. Steering Committee provide Tech Memo #1 comments to LaBella	Town, GTC and NYSDOT	5/17/21	In progress
2. Update and finalize Tech Memo #1	LaBella	5/20/21	Pending
3. Set up www.publicmeeting.com	GTC	5/25/21	Pending
4. Initiate Needs Assessment	LaBella	5/14/21	In progress
5. Coordinate business owner meeting	Town & LaBella	5/20/21	Initiate
6. Gather expansion plans for Optimax, Intergrow, Optipro, and Harbec	LaBella	5/20/21	Initiate

PENDING OLD ACTION ITEMS	TASK OWNER(S)	DEADLINE	STATUS

BEH INDUSTRIAL PARK TRAFFIC OPTIMIZATION STUDY
BUSINESS OWNER MEETING MINUTES

Location: Casey Park

Date: June 25, 2021

Time: 9:00 AM

Attendees: See attached sign in sheet.

AGENDA AND DISCUSSION ITEMS

An introductory informational meeting was held with businesses identified as having expansion plans by the Town & Steering Committee for the Beh Study. The meeting purpose was to introduce the study and discuss the potential expansion plans for Beh businesses.

1. Welcome & Introductions

2. Scope Overview & Schedule
   - A study overview was presented. The project goal is to support the continued growth and development of the site through transportation and access recommendations.
   - The project schedule and milestone tasks were identified with a November completion date.
   - Next milestone is completion of Technical Memo #2 – Needs Assessment.

3. Inventory
   - LaBella provided a summary of Technical Memo #1 for Existing Conditions that was submitted on April 28th. Highlights include:
     - NYSDOT provided Route 104 intersection plans and signal timings.
     - GTC provided the Route 104 Trail Corridor Trail plan and OMID Strategic Plan.
     - Town provided various plans and studies. All had common theme to enhance the transportation system to support businesses and economic development.
     - LaBella collected traffic turning movement counts and adjusted counts for Covid based on historical volumes.
     - Existing intersections were analyzed with all having an overall Level of Service (LOS) of “C” or better. Some individual left turn movements operate at LOS of “E” which is approximately 60 second delay.
     - 23 crashes over a 6 year period at the Route 104/Dean Parkway intersection. Predominant accident types were rear end crashes and animal crashes.
     - No pedestrian or bicycle facilities within the Beh Industrial Park. A minor number of workers have been observed walking on Timothy Lane.
     - No on-street parking, but have private lots.
     - No public transit on site.
     - Identified existing infrastructure and conditions.

- Identified wetlands and FEMA floodplains which includes Fourmile Creek. Future access road will be located to minimize impacts or avoid.

4. Needs Assessment
   - LaBella will build off of the existing inventory and business owner feedback to develop the Needs Assessment task.
   - Add future development from Optimax, Optipro, Intergrow, Harbec, and others.
   - Identify future needs and opportunities to develop appropriate recommendations.

5. Next Steps
   - Gather expansion plans from business owners.
   - Finalize Technical Memo #2 – Needs Assessment.
   - Public Meeting #1 is scheduled for late-July.

6. Business feedback & miscellaneous discussion
   - General consensus that the EB left turn lane on Route 104 at Dean Pkwy is not long enough; cars regularly stack beyond the turn lane during peak hours.
   - No dedicated right turn lane on Dean Pkwy SB at Route 104. Familiar drivers leave room, but trucks and unfamiliar drivers do not, causing backups to Timothy Lane.
   - Inadequate vehicle detection on Dean Pkwy SB at Route 104. Detector present south of the railroad tracks, but does not catch trucks that may be stopped ahead of the tracks. Need additional detector north of the railroad tracks.
   - Ranger Design building (SW corner of Dean Pkwy & David Pkwy) is currently nearly vacant, presents redevelopment opportunity of nearly 100,000 SF.
   - Optimax has purchased property behind its building; unlikely that road could be extended from current David Pkwy cul-de-sac.
   - Intergrow Phase 3 will occupy property between current building and Route 104, opposite Lincoln Rd. Unlikely that road could be extended from Timothy Lane to Route 104.
   - Access to Route 104 opposite Lincoln Rd was previously studied and determined to be not feasible by the Town due to high cost and lack of funding.
   - Photon Gear (245 David Pkwy) reportedly considering expansion to double current size.
   - AP Enterprises (486 Timothy Lane) reportedly considering expansion.
   - Similar traffic concerns (delays, inadequate turn lanes) noted at Route 104 & Lakeside Rd intersection.
   - Need to check ROW width on Dean Pkwy to see if widening for right turn lane is feasible within the ROW.
   - Ontario View Business Park (Timothy Lane opposite AP Enterprises) is planned but currently awaiting funding. A collection of small businesses & retail is planned.
   - Need to consider utility extensions along new roadway(s).
   - Town is evaluating improvements to water & sewer services. Existing water pressure & sewer capacity concerns. Sewer must travel through 4 pump stations and the project area is near the geographic limit of the town's system. Current sewer system should be able to accommodate buildout of Beh site but probably not much beyond that.

7. Action Items
   - See action item table.

If there are any errors or significant omissions, please contact me at (585) 402-7041 or Lrotoli@labellapc.com. Please reply with comments within one week at which point these minutes will be considered final.

Respectfully Submitted by:

LaBella Associates, D.P.C.

Lorenzo Rotoli
Senior Project Manager

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NEW ACTION ITEMS	TASK OWNER(S)	DEADLINE	STATUS
1. Gather expansion plans for Optimax, Intergrow, Optipro, and Harbec a) If available, expansion concept plans (new buildings and/or additions to current buildings) b) Gross square footage of expansions c) Anticipated number of new employees d) Anticipated truck traffic volumes (company & independent)	Business reps	7/2/21	In progress
2. Technical Memo #2 - Needs Assessment	LaBella	7/19/21	In progress

PENDING OLD ACTION ITEMS	TASK OWNER(S)	DEADLINE	STATUS

BEH INDUSTRIAL PARK TRAFFIC OPTIMIZATION STUDY STEERING COMMITTEE #3 MEETING MINUTES

Location: TEAMS virtual meeting

Date: August 11, 2021

Time: 9:00 AM

Attendees: By video conference call Jody Binnix, Adam Cummings, Brian Pincelli, Zack Starke, Andrew Quinn, Lorenzo Rotoli, Derik Kane, and Tom Miller.

AGENDA AND DISCUSSION ITEMS

Steering Committee meeting #3 was held for the Beh Study. Topics of discussion were as follows:

1. Scope Overview & Schedule
   - The Steering Committee was updated on the project schedule.
   - Technical Memo #2 – Needs Assessment Inventory was submitted on July 22.
   - Updated Study completion date is December 2021.
   - Public Meeting #1 is tentatively scheduled for late August or early September. A hybrid format is preferred with in-person and virtual participation options.

2. Needs Assessment
   - LaBella presented an overview of Technical Memo #2 (PowerPoint is attached).
   - Met with Optimax, Optipro, Intergrow, and Harbec in June to discuss the study and request their expansion plans to incorporate into the project.
   - Added future development trip generations for build out scenario.
   - Assessed physical, operational, and safety conditions.
   - Identified failing build out traffic movements at Route 104/Dean Parkway intersection for eastbound left, southbound left, and southbound right.
   - Identified future Beh Park infrastructure needs and opportunities.
   - Submitted electronic Synchro traffic files to NYSDOT for their operational review.

3. Next Steps
   - LaBella to address any further Steering Committee comments to Technical Memo #2. Comments are requested by August 17.
   - Finalized Technical Memo #2 will be re-issued and uploaded onto GTC project website.
   - LaBella will issue a draft community survey questionnaire to the Steering Committee for review and comment.
   - Finalized survey will be issued for the subsequent Public Meeting tentatively scheduled for the end of August or early September.
   - LaBella requested the Town's assistance with the Public Meeting for:
     - Location

    - Who to invite (businesses and residents); provide contact information.
    - Use the Town's Beh business mailing list for notification
    - Identify private residences on County Line Road for targeted direct mailers.
- Initiate Technical Memo #3 (Draft Corridor Recommendations).

4. Other
    - Potential interest in a sidewalk / trail network within the Beh Industrial Park will be determined via the survey (expected to be distributed in late August).
    - A 95-unit housing development is planned south of Union Hill. This type of development may increase demand for pedestrian / bicycle connections to the Beh Industrial Park.
    - A potential new connection to County Line Road was discussed. Two houses south of the creek have reportedly been purchased by an adjacent property owner (business), and the Town believes the owner is willing to consider a new road connection in this area.
    - A potential new connection to Route 104 opposite Lincoln Road was discussed. Intergrow Phase 3 will occupy the land opposite Lincoln Road, extending south to approximately 30 ft from the railroad tracks. As a result, a road connection opposite Lincoln Road has been determined to be not feasible.
    - The Town will further investigate a potential connection to Lakeside Road, but this is also expected to not be feasible due to the future Intergrow expansion.
    - Staggered work schedules for businesses in the park were discussed as a way to reduce peak hour traffic.
    - Recommendations will need to consider the planned Route 104 Trail.
    - Following the meeting, NYSDOT indicated that a capital project is planned for traffic signals along Route 104, including Dean Parkway and County Line Road. The project would replace traffic signals with mast arm signals, add pedestrian signals, crosswalks and pads, improve vehicle detection, and lengthen the eastbound left turn lane on Route 104 at Dean Parkway. Technical Memo #2 will be revised to reference this upcoming project.

5. Action Items
    - See action item table.

If there are any errors or significant omissions, please contact me at (585) 402-7041 or Lrotoli@labellapc.com. Please reply with comments within one week at which point these minutes will be considered final.

Respectfully Submitted by:

LaBella Associates, D.P.C.

Lorenzo Rotoli
Senior Project Manager

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NEW ACTION ITEMS	TASK OWNER(S)	DEADLINE	STATUS
1. Steering Committee provide Tech Memo #2 comments to LaBella	Town, GTC and NYSDOT	8/17/21	In progress
2. Update and finalize Tech Memo #2	LaBella	8/20/21	Initiate
3. Tech memo #3 (Draft Recommendations)	LaBella	10/15/21	Initiate
4. Submit draft survey questionnaire	LaBella	8/20/21	Initiate
5. Identify Public Meeting facility	Town	8/17/21	Initiate
6. Provide business and resident contact information	Town	8/17/21	Initiate
7. Upload final Tech Memo #2 to GTC website	GTC	8/20/21	Initiate

PENDING OLD ACTION ITEMS	TASK OWNER(S)	DEADLINE	STATUS

BEH INDUSTRIAL PARK TRAFFIC OPTIMIZATION STUDY STEERING COMMITTEE #4 MEETING MINUTES

Location: TEAMS virtual meeting

Date: November 15, 2021

Time: 10:00 AM

Attendees: By video conference call Jody Binnix, Adam Cummings, Frank Robusto, Zack Starke, Andrew Quinn, Lorenzo Rotoli, and Tom Miller.

AGENDA AND DISCUSSION ITEMS

Steering Committee meeting #4 was held for the Beh Study. Topics of discussion were as follows:

1. Scope Overview & Schedule
   - The Steering Committee was updated on the project schedule.
   - Technical Memo #3 – Corridor Recommendations was submitted on November 2.
   - Updated Study completion date is December 2021/January 2022.
   - Public Meeting #2 is planned for December after Tech Memo #3 is finalized.

2. Corridor Recommendations
   - LaBella presented an overview of Technical Memo #3 (PowerPoint is attached).
   - Included future development trip generations for build out scenario for year 2026.
   - Added a new secondary site access at County Line Road and redistributed traffic accordingly.
   - Future build-out traffic analysis showed acceptable levels of service at signalized intersections.
   - Committee requested clarification on traffic tables to show comparison between No-Build versus Build scenarios.

   <u>New access road to County Line Road</u>
   - New access road is an extension of Timothy Lane to the west connecting at County Line Road with the following design:
     - Length is 3,000 linear feet
     - Right of way is 66’
     - Two 12’ travel lanes with 4’ shoulders
   - Identified new access road design considerations, costs ($3.2M), and potential funding sources.
   - Town agrees with the proposed new road alignment.
   - Town has no news regarding the property acquisition at County Line Road.

   <u>Route 104/Dean Parkway intersection</u>
   - Route 104/Dean Parkway intersection improvements include the following improvements:
     - Addition of a Dean Parkway southbound right turn lane (200’)
     - Extension of the Route 104 eastbound left turn lane (550’)
     - Signal optimization at Route 104/Dean Parkway intersection
     - Signal backplates

    - Pedestrian signal indications and crosswalks (east side of intersection)
    - Vehicle detection on Dean Parkway
- NYSDOT has a capital improvement plan for signal and pedestrian crosswalks for the Route 104/Dean Parkway intersection. Preliminary NYSDOT plans show crosswalk on the west side of intersection to avoid pedestrian conflicts with left turns from Dean Parkway. NYSDOT is close to finalizing plans for Route 104 improvements which includes all signalized intersections between Basket Road and Ontario Center.
- Design team will coordinate with NYSDOT for location placement of crosswalk at Route 104/Dean Parkway.
- New Route 104/Dean Parkway intersection improvements estimated cost is $345,000. Estimated $64,000 of $345,000 is Town portion for Dean Parkway southbound right turn lane. Potential Town betterment opportunity to include as part of NYSDOT capital project.

Sidewalk & Trail System

- 5' sidewalk is proposed on the east side of Dean Parkway.
- Leave dedicated space for a 10' asphalt trail as part of future Route 104 Trail connection on the north side of Timothy Lane.
- Identified new sidewalk and trail design considerations, costs ($710,000), and potential funding sources.

NYSDOT Route 104 signal improvements

- In addition to the Route 104/Dean Parkway intersection, NYSDOT has a capital improvement plan for signal and pedestrian crosswalks for the four intersections along Route 104 within the Beh Study project area. Approximate estimate of $200,000 per intersection.

Beh Park internal infrastructure improvements

- Mill and overlay portions of Dean Parkway and Timothy Lane with estimated cost of $315,000.
- Drainage system inspection, cleaning, and replacement as necessary. Drainage system cost varies based on work and conditions. The Town is also currently looking at drainage improvements within the Beh Industrial Park (along with mill & overlay).

3. Other
    - Coordination with Town for location, date and time for Public Meeting #2 in December.
    - Town requested a copy of the presentation. LaBella will send with meeting minutes.

4. Next Steps
    - LaBella to address any further Steering Committee comments to Technical Memo #3. Comments are requested by November 22.
    - Finalized Technical Memo #3 will be re-issued and uploaded onto GTC project website.
    - Public Meeting will be held at Town Hall; date and time to be determined.
    - Initiate Draft Report.

5. Action Items
    - See action item table.

If there are any errors or significant omissions, please contact me at (585) 402-7041 or Lrotoli@labellapc.com. Please reply with comments within one week at which point these minutes will be considered final.

Respectfully Submitted by:

LaBella Associates, D.P.C.

Lorenzo Rotoli
Senior Project Manager

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NEW ACTION ITEMS	TASK OWNER(S)	DEADLINE	STATUS
1. Update LOS tables to compare No-Build versus Build scenarios	LaBella	11/22/21	In progress
2. Coordinate & update Route 104/Dean Pkwy crosswalk location	LaBella	11/22/21	Initiate
3. Steering Committee provide Tech Memo #3 comments to LaBella	Town, GTC and NYSDOT	11/22/21	In progress
4. Update and finalize Tech Memo #3	LaBella	12/1/21	Initiate
5. Upload final Tech Memo #3 to GTC website	GTC	12/2/21	Initiate
6. Identify Public Meeting #2 date and time in December	LaBella & Town	11/23/21	Initiate
7. Draft Report	LaBella	12/9/21	Initiate

PENDING OLD ACTION ITEMS	TASK OWNER(S)	DEADLINE	STATUS

Community Survey

Beh Industrial Park Traffic Optimization Study **Return by October 4, 2021**

1. Please provide your contact information
   a. Name Bill or Tricia Kilpatrick
   b. Company/Affiliation B+C Auto Restoration + Paint Inc
   c. City/Town Ontario
   d. Zip code 14519
   e. Email address Pbruffino@gmail.com
   f. Phone number 585-265-0041

2. Do you work at Beh Industrial Park?
   a. (Yes)/No
   b. Which company B+C Auto Restoration + Paint
   c. Do you approach the Beh Industrial Park from the East or West on Route 104?
   d. Start time 7:30 AM
   e. End time 4:00 PM

3. How do you typically travel to & from the Beh Industrial Park?
   a. Personal vehicle – drive alone X
   b. Personal vehicle – carpool / rideshare
   c. Public transit
   d. Walk
   e. Bicycle

4. If a sidewalk or trail system were constructed in the Beh Industrial Park, would you use it to: (select all that apply)
   a. Walk / exercise during lunch or breaks X yes Please
   b. Travel between businesses in the park X " "
   c. Travel to Route 104
   d. Walk from home to work and back
   e. I would not use a sidewalk or trail system

5. If improvements were made to pedestrian, bicycle and/or transit facilities, would you consider using one or more of these modes to travel to & from the Beh Industrial Park? (select all that apply)
   a. Yes, would consider using pedestrian facilities X
   b. Yes, would consider using bicycle facilities
   c. Yes, would consider using transit facilities
   d. No, would not consider alternative modes of travel

6. What are your traffic-related concerns to enter the Beh Industrial Park?
   From West The Left Turn Lane is WAY too short
   The Left Turn signal is too short during Peak Times

7. What are your traffic-related concerns to exit the Beh Industrial Park?
   Need a Right Turn Lane to head West
   It is Terribly backed up @ 3:30

8. Do you have any other concerns or comments?

1. Contact info

Michael Spryn
Optimax Systems, Inc.
Ontario, NY 14519
mspryn@optimaxsi.com
585-230-6797

2.Do you work at Beh Industrial Park?

a: Yes
b: Optimax
c: Approach from West
d: Pre-Covid19: 7:00am. Now random
e: Pre-Covid19: 5:00pm. Now random

3. How do you typically travel to & from the Beh Industrial Park?

Personal vehicle - drive alone

4. Sidewalk...

Walk/exercise during lunch or breaks

5. Improvements (pedestrian, bicycle, ...)

No, would not consider alternate modes of travel

6. Traffic-related concerns to enter the Beh Industrial Park

During eastbound morning rush hour I always have to wait in the left turn lane. My waits are one to three light cycles. On a few occasions I've been backed up into the left through-lane. In those cases, for safety I instead continued straight to the Lincoln Rd light and performed a U-turn to approach Dean Parkway from the East.

At times there are semi-trucks also turning left onto Dean Parkway. Fed-Ex, UPS, and other trucks add to the list. Every time that happens nobody behind the truck is able to (legally) turn left. This happens a little more frequently with the new tomato plant.

These same events are not limited to rush-hour. It happens throughout the day to a lesser degree.

In 2015 I called NYS-DOT about the above issues. They sent someone out who adjusted the timings for the left-turn. The change made was to lengthen the left turn light during morning rush hour. That definitely helped and people recognized the improvement. There were far fewer backups into the left through-lane. I asked about further improvements similar to Furnace Rd and Knickerbocker. I was told Dean Parkway could not be set up the same because of the narrow median. Also, they could not make any more timing changes because of the synchronization to the other lights on Rt104.

In addition, the single access to Beh is a concern. I remember at least one building fire at the entrance to Dean Parkway which closed the road. With no other access, vehicles could not enter or exit.

7. What are you traffic-related concerns to exit the Beh Industrial Park?

The exit road is paved as a one lane exit. There is no right-turn lane. At afternoon rush hour, vehicles back up on Dean Parkway including semi-trucks. The regulars have developed a routine to try to help the flow. The regulars who are turning left (East) onto Rt104 stay far to the left almost on or over the center line. That courtesy allows drivers who are turning right to get by them and be able to turn on red. When we do get an exit green light, having two lanes of traffic flowing makes a big difference. But, potholes start developing on the edge of the pavement so the right turn traffic starts slowing down over time (sometimes stopping). Then the exit backup grows until the potholes are filled.

This routine is disrupted when a left-turn driver unfamiliar with our exit routine doesn't shift to the left and now everybody is waiting for a perceived short green light to exit. The same thing happens when a semi-truck exits.

Regarding semi-trucks, this exit problem was even worse several years ago. The railroad tracks adjacent to the signal prevented a truck from pulling up to the signal to activate the green light. There was no detector before the tracks. A semi-truck on Dean Parkway would approach Rt104 and stop before the tracks not realizing that they would not be detected. A call to NYS-DOT was effective and they came out to install a detector loop before the tracks. I believe the new detector is functioning, but am not positive because the semi-truck drivers now seem to come right up to Rt104.

8. Do you have any other concerns or comments?

The LaBella study to-date is very thorough and informative. Nice job! What it can't show is the real-life multiple-day experiences of the drivers and their frustrations. I've been driving this route since 2005 and have become very familiar with the Dean Parkway intersection.

The regular drivers recognize that this left turn lane doesn't have to be as bad as it is. Even without performing road construction this could be made better now.

For example, at the point where the westbound traffic gets a green light there is usually a collection of stopped vehicles which start moving. In many cycles, after that bunch of westbound vehicles get through the light, there are long gaps of no westbound vehicles. Typically, just as westbound vehicles do approach they get a red light and the eastbound left turn green light activates. (Is this a possible opportunity for a synchronization improvement?)

Here is where eastbound drivers get frustrated. They are sitting still in a long line with no oncoming traffic. I've seen many people turn left against the red using those westbound gaps. I've also experienced eastbound vehicles driving in the left through-lane past the left turn vehicles then turning left in front of them against the red left arrow.

I have dash-cam footage of several of these scenarios.

I'm aware of one near road-rage incident. A driver who was waiting in the left turn lane was passed on the right by a second driver which turned in front of them and ran the red light. The first driver chased down the second one to their business parking lot and sat in the vehicle staring at the second

driver. Apparently this scenario was repeated a few days later. (I was told there was no physical encounter.)

One (or both) of two light programming changes have the potential to make a big difference for the eastbound left turns. It might even eliminate the need to lengthen the left turn lane:

a. Increase the left turn arrow time
Use some of that gap from the westbound green light. Maybe the synchronization could be improved?

b. Let us turn on red/blinking-yellow
In my conversations with NYS-DOT I've come to the understanding of the preference for using angled left turn lanes for safety. But, Dean Parkway is not like Furnace or Knickerbocker. It is a T-intersection. No westbound traffic is turning left onto Dean Parkway South. The only drivers in the westbound left turn lane are making U-turns. And that is extremely rare. LaBella's study shows 4 westbound U-turns compared with the oncoming 765 eastbound vehicles.

So let eastbound people turn in those westbound gaps. This could drastically reduce the eastbound left turn wait time. The new programming could even be set to not allow eastbound left turns if a westbound vehicle is present in the U-turn lane (for those “4” vehicles). During non-rush hour this might even improve westbound flow by eliminating some of the westbound red light events since the eastbound lefties have already made it through.

All the other LaBella proposed changes are exciting to see. But this particular programming change might be a relatively quick (but temporary) improvement.

APPENDIX C

Cost Estimate Information

Cost Estimate
New Access Road

BEH Industrial Park
Probable Construction Cost Estimate

Timothy Lane Extension - new road				**$1,528,625**
Item Description	**Quantity**	**Unit**	**Unit Cost**	**Cost**
Item 201.06 - clearing and grubbing	1	ls	$35,000	$35,000
Item 203.02 - unclassified excavation	10,222	cy	$29	$296,444
Item 304.12 - subbase	3,556	cy	$50	$177,778
Item 402.XX - asphalt pavement	6,272	t	$80	$501,760
Item 407.0102 - diluted tack coat	1,920	gal	$4	$7,680
Item 610.1402 - topsoil	1,037	cy	$58	$60,148
Item 610.1601 - establish turf	9,333	sy	$2	$18,667
Item 685.XX - pavement markings	12,000	ft	$0.50	$6,000
Subtotal				$1,103,477
Work zone traffic control (3%)				$33,104
Erosion Control (3%)				$33,104
Survey (5%)				$55,174
Subtotal				$1,224,860
Mobilization (4%)				$48,994
Subtotal				$1,273,854
Contingency (20%)				$254,771
New Road Total				$1,528,625

Water Main				**$462,145**
Item Description	**Quantity**	**Unit**	**Unit Cost**	**Cost**
Item 206.0201 - trench and culvert excavation	2,778	cy	$34	$94,444
Item 203.07 - select granular fill	1,667	cy	$67	$111,667
Item 663.0412 - 12" plastic water main	3,000	ft	$30	$90,000
Item 663.1301 - hydrant	5	ea	$7,500	$37,500
Subtotal				$333,611
Work zone traffic control (3%)				$10,008
Erosion Control (3%)				$10,008
Survey (5%)				$16,681
Subtotal				$370,308

BEH Industrial Park
Probable Construction Cost Estimate

Mobilization (4%)				$14,812
Subtotal				$385,121
Contingency (20%)				$77,024
Water Main Total				$462,145
Sanitary Sewer Main				**$722,193**
Item Description	**Quantity**	**Unit**	**Unit Cost**	**Cost**
Item 206.0201 - trench and culvert excavation	3,889	cy	$34	$132,222
Item 203.07 - select granular fill	2,778	cy	$67	$186,111
Item 603.98100804 - 8" PVC sewer main	3,000	ft	$49	$147,000
Item 664.40480006 - 48" sanitary sewer manhole	80	ft	$700	$56,000
Subtotal				$521,333
Work zone traffic control (3%)				$15,640
Erosion Control (3%)				$15,640
Survey (5%)				$26,067
Subtotal				$578,680
Mobilization (4%)				$23,147
Subtotal				$601,827
Contingency (20%)				$120,365
Sanitary Sewer Main Total				$722,193
Culvert				**$193,939**
Item 603.64100715 - conc box culvert 10 ft x 7 ft	56	ft	$2,500	$140,000
Subtotal				$140,000
Work zone traffic control (3%)				$4,200
Erosion Control (3%)				$4,200
Survey (5%)				$7,000
Subtotal				$155,400

BEH Industrial Park
Probable Construction Cost Estimate

Mobilization (4%)	$6,216
Subtotal	$161,616
Contingency (20%)	$32,323
Culvert Total	$193,939

Cost Estimate
NYS Route 104 & Dean Parkway Intersection

BEH Industrial Park
Probable Construction Cost Estimate

Rte 104 - Dean Parkway Intersection Improvements

Rte 104				**$89,521**
Item Description	**Quantity**	**Unit**	**Unit Cost**	**Cost**
Item 203.02 - unclassified excavation	474	cy	$29	$13,745
Item 304.12 - subbase	253	cy	$50	$12,639
Item 402.XX - asphalt pavement	446	t	$80	$35,672
Item 407.0102 - diluted tack coat	137	gal	$4	$546
Item 610.1402 - topsoil	20	cy	$58	$1,179
Item 610.1601 - establish turf	183	sy	$2	$367
Item 685.XX - pavement markings	950	ft	$0.50	$475
Subtotal				$64,623
Work zone traffic control (3%)				$1,939
Erosion Control (3%)				$1,939
Survey (5%)				$3,231
Subtotal				$71,731
Mobilization (4%)				$2,869
Subtotal				$74,600
Contingency (20%)				$14,920
Rte 104 Total				$89,521

Dean Parkway				**$54,241**
Item Description	**Quantity**	**Unit**	**Unit Cost**	**Cost**
Item 203.02 - unclassified excavation	198	cy	$29	$5,740
Item 304.12 - subbase	106	cy	$50	$5,278
Item 402.XX - asphalt pavement	240	t	$80	$19,189
Item 407.0102 - diluted tack coat	121	gal	$4	$484
Item 490.30 - misc. mill of bituminous conc.	639	sy	$11	$7,028
Item 610.1402 - topsoil	13	cy	$58	$754
Item 610.1601 - establish turf	117	sy	$2	$233
Item 685.XX - pavement markings	900	ft	$0.50	$450
Subtotal				$39,155

BEH Industrial Park
Probable Construction Cost Estimate

Work zone traffic control (3%)	$1,175
Erosion Control (3%)	$1,175
Survey (5%)	$1,958
Subtotal	$43,462
Mobilization (4%)	$1,738
Subtotal	$45,201
Contingency (20%)	$9,040
Dean Parkway Total	$54,241

Cost Estimate
Dean Pkwy and Timothy Lane
Mill & Overlay

BEH Industrial Park
Probable Construction Cost Estimate

Mill and Overlay Dean Parkway and Timothy Lane

Timothy Lane				**$162,265**
Item Description	**Quantity**	**Unit**	**Unit Cost**	**Cost**
Item 402.XX - asphalt pavement	532	t	$80	$42,560
Item 407.0102 - diluted tack coat	633	gal	$4	$2,533
Item 490.30 - misc. mill of bituminous conc.	6,333	sy	$11	$69,667
Item 685.XX - pavement markings	4,750	ft	$0.50	$2,375
Subtotal				$117,135
Work zone traffic control (3%)				$3,514
Erosion Control (3%)				$3,514
Survey (5%)				$5,857
Subtotal				$130,020
Mobilization (4%)				$5,201
Subtotal				$135,221
Contingency (20%)				$27,044
Timothy Lane Total				$162,265

Dean Parkway				**$134,349**
Item Description	**Quantity**	**Unit**	**Unit Cost**	**Cost**
Item 402.XX - asphalt pavement	436	t	$80	$34,884
Item 407.0102 - diluted tack coat	519	gal	$4	$2,076
Item 490.30 - misc. mill of bituminous conc.	5191	sy	$11	$57,102
Item 685.XX - pavement markings	5840	ft	$0.50	$2,920
Subtotal				$96,983
Work zone traffic control (3%)				$2,909
Erosion Control (3%)				$2,909
Survey (5%)				$4,849
Subtotal				$107,651
Mobilization (4%)				$4,306
Subtotal				$111,957
Contingency (20%)				$22,391
Dean Parkway Total				$134,349

Cost Estimate
Sidewalk / Trail System

BEH Industrial Park
Probable Construction Cost Estimate

Asphalt Trail				**$442,620**
Item Description	**Quantity**	**Unit**	**Unit Cost**	**Cost**
Item 201.06 - clearing and grubbing	1	ls	$3,500	$3,500
Item 203.02 - unclassified excavation	1,359	cy	$29	$39,405
Item 304.12 - subbase	815	cy	$50	$40,764
Item 608.020102 - asphalt path	1,096	t	$200	$219,147
Item 610.1402 - topsoil	220	cy	$58	$12,746
Item 610.1601 - establish turf	1,978	sy	$2	$3,956
Subtotal				$319,517
Work zone traffic control (3%)				$9,586
Erosion Control (3%)				$9,586
Survey (5%)				$15,976
Subtotal				$354,664
Mobilization (4%)				$14,187
Subtotal				$368,850
Contingency (20%)				$73,770
Asphalt Trail Total				$442,620

Concrete Sidewalk				**$225,352**
Item Description	**Quantity**	**Unit**	**Unit Cost**	**Cost**
Item 201.06 - clearing and grubbing	1	ls	$3,500	$3,500
Item 203.02 - unclassified excavation	269	cy	$29	$7,787
Item 304.12 - subbase	161	cy	$50	$8,056
Item 608.0101 - concrete sidewalks	107	cy	$900	$96,667
Item 610.1402 - topsoil	778	cy	$58	$45,111
Item 610.1601 - establish turf	778	sy	$2	$1,556
Subtotal				$162,676
Work zone traffic control (3%)				$4,880
Erosion Control (3%)				$4,880
Survey (5%)				$8,134
Subtotal				$180,570
Mobilization (4%)				$7,223
Subtotal				$187,793
Contingency (20%)				$37,559
Concrete Sidewalk Total				$225,352