

## 6.0 Transportation

The City of Vaughan is undertaking a **Transportation Master Plan (TMP) Study as part of the Official Plan Update. The TMP** is being prepared to identify the infrastructure requirements necessary to accommodate the population and employment growth expected from the implementation of the **Growth Management Strategy of the Official Plan. As part of the TMP, the City identified three areas with significant growth pressure that** require more detailed transportation and urban planning and design analysis, including **Kleinburg-Nashville.**

The following review was prepared by AECOM and provided to The Planning Partnership. **It provides an overview of the existing transportation conditions in the Kleinburg-Nashville area.**

### 6.1 Background

#### 6.1.1 Region of York OP and York TMP

The approved York Region Official Plan (December 2009) identifies Kleinburg as a local centre that should have specific amenities including a commercial core, pedestrian environment and an appropriate focus on residential, commercial, institutional and community uses. The Plan further identifies the area of Nashville as a hamlet that should retain its rural character while permitting growth primarily through infilling.

The updated York TMP (adopted November 2009) recommends a number of roadway improvements within the community as follows:

- Improvements to Highway 27 to increase capacity
- Widening of Highway 50 from Rutherford to Kirby Road to six lanes
- Realignment of Major Mackenzie Drive south of Kleinburg, at its intersection with Highway 27, to eliminate the jog between the two legs

The transit improvements recommended include:

- Extension of GO Train service on the CP Line to Bolton with stations proposed at Major Mackenzie Drive and Rutherford Road
- Transit priority network along Major Mackenzie Drive and Highway 27 south of Major Mackenzie Drive



### 6.1.2 OPA 601

The Official Plan Amendment 601 was adopted by Council in September 25, 2000 to replace OPA 160 which had been in effect since 1982. The Plan reflects approved land use designations in the Kleinburg-Nashville area and provides for new residential development in the northwest and northeast sections of the Secondary Plan.

The Transportation objectives of OPA 601 are outlined as follows:

- To ensure the provision of adequate and sufficient infrastructure for the overall community and individual neighbourhoods
- To ensure coordination between the transportation requirements and community objectives with respect to urban design
- To provide opportunity for enhanced transit service to the community

OPA 601 identifies the extension of Major Mackenzie Drive and improvements on Islington Avenue as primary areas to be followed up with the Region of York. It emphasises the provision of adequate pedestrian and bicycle facilities and identifies Islington Avenue and Nashville Road as roads that should function as pedestrian-friendly village main streets.

The document recommends 20m right-of-way widths for primary roads connecting communities with neighbourhood streets ranging from 18.5 to 20m in right-of-way widths.

## 6.2 Existing Conditions Review

### 6.2.1 Data Collection

The traffic data used in the analysis in this memorandum was obtained for the City of Vaughan as well as from various documents related to on-going studies within the area including:

- The Western Vaughan Individual EA; and,
- Nashville West Community Plan Study (Block 61)

The data include traffic volume counts at specific screenlines as well as turning movement volumes at a number of intersections.

### 6.2.2 Existing Transportation Network

#### Road Network

The transportation system in the Study Area consists of a network of Regional arterial roads and local and collector roads belonging to the City. The City roads include Nashville Road (City from Islington to Hwy 27) west of Hwy 27 - York Region jurisdiction, Kirby Road, Huntington Road and Teston Road. The main arterial roads including Islington - City jurisdiction north of Major Mackenzie Drive, Highway 27, joint jurisdiction of Peel and York Region Highway 50, Major Mackenzie Drive and Rutherford Drive are under the jurisdiction of the Regional Municipality of York. Table 3 provides a list of the major roadways within the Study Area.

Highway 27 is the major arterial road that provides north-south access from the Study Area to Toronto as well as providing vital connections to Highway 407 and Highway 7

Table 2. Primary Roadways within the Study Area

Street	Jurisdiction	Posted Speed	# Lanes
Major Mackenzie	Regional Road	60/80	2
Rutherford Road	Regional Road	60	4
Nashville Road	City and YR Road	50	2
Kirby Road	City Road	60	2
Highway 27	Regional Road	80	2
Huntington Road	City Road	60	2
Highway 50	Regional Road	80	4
Teston Road	City and YR Road	60	2
Islington Avenue	City Road	40-50	2

to the south. East-west travel is provided primarily by Major Mackenzie Drive to the east, and Nashville Road to the west. The west leg of Major Mackenzie Drive is a minor road that does not attract much traffic because of the jog at Highway 27.

### Transit Facilities

York Transit provides limited service to the area with Bus Route 13 running along Islington Avenue to Kleinburg during the weekday peak periods. During the off-peak periods the bus service terminates south of Major Mackenzie Drive, looping along Napa Valley Avenue back onto Islington Avenue. Figure 7 shows the York Region Transit map for the Study Area.

### 6.2.3 Cycling and Pedestrian Facilities

As part of the Pedestrian and Bicycle Master Plan Study adopted by the City in 2007, a number of facilities are proposed in the Kleinburg-Nashville Study Area including:

- Multi-use pathways and trails in the East Humber River valley
- Signed bicycle route on Major Mackenzie Drive (west leg), Huntington Road and Islington Avenue
- Paved shoulders on Nashville Road, Major Mackenzie Drive (east leg), and Teston Road

These facilities are illustrated on Figure 8.

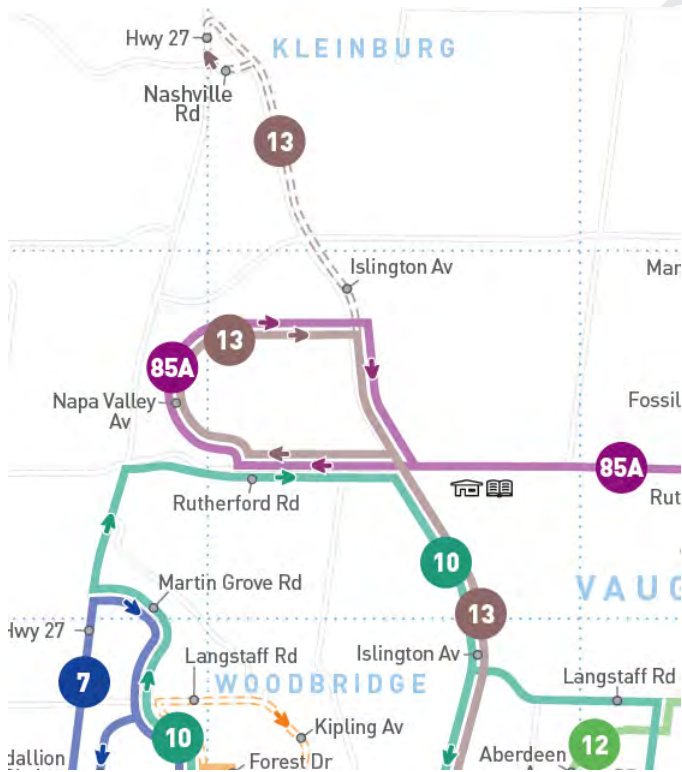


Figure 7.  
YRT Service Map for Study Area

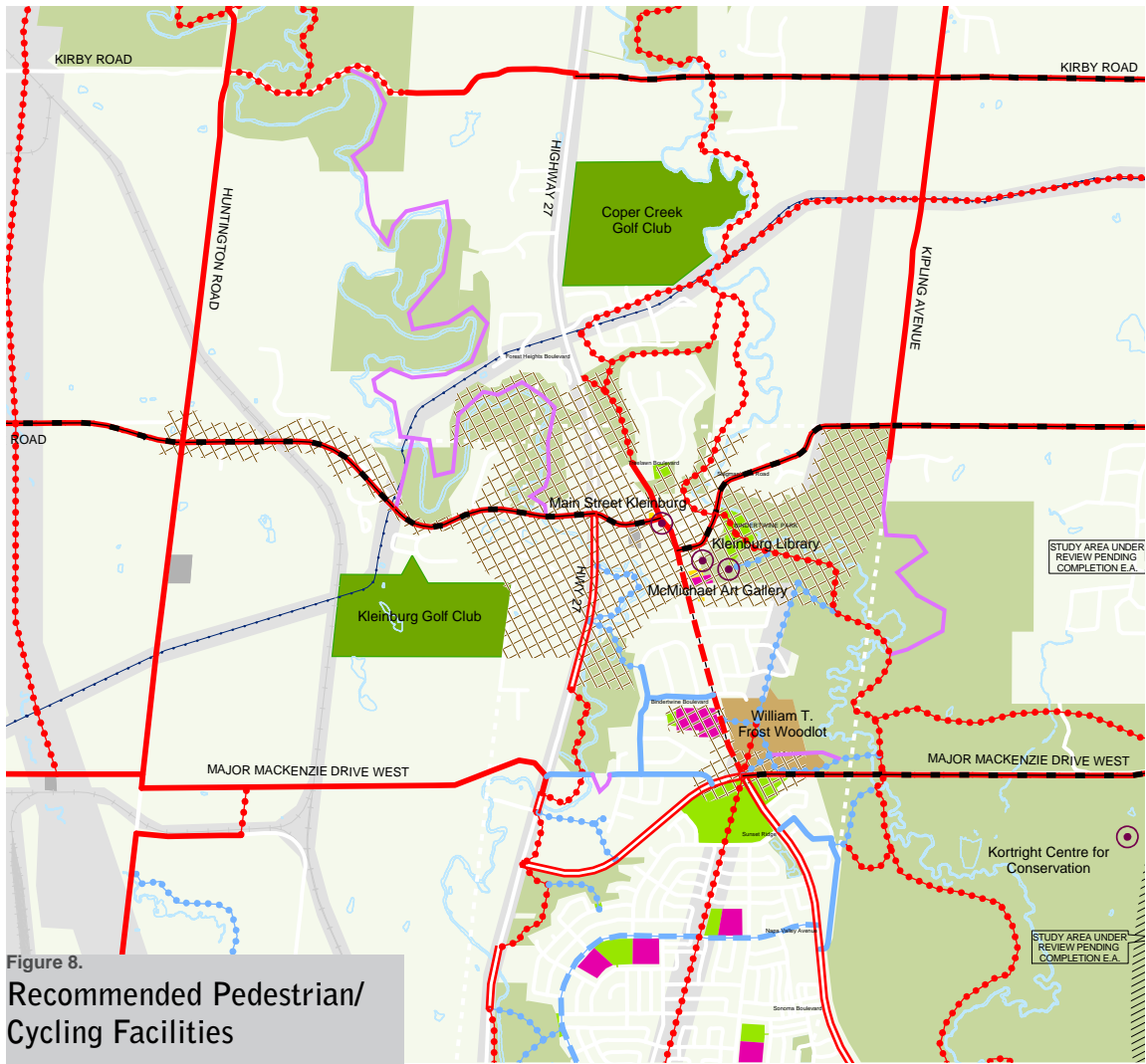


Figure 8.  
**Recommended Pedestrian/  
 Cycling Facilities**

**Class 1 Multi-use Recreation or Boulevard Pathway**

- Community Multi-use Recreational Pathway (CMRP)
- Neighbourhood Multi-use Recreational Pathway (NMRP)
- ==== Community Multi-use Boulevard Pathway (CMBP)

**Class 2 Bike Lane / Paved Shoulder / Sidewalk**

- - - - Community Bike Lane - Formal pavement marking and signing (CL - NO WIDENING)
- - - - Community Bike Lane - Formal pavement marking and signing (CL - WIDENING)
- - - - Neighbourhood Bike Lane - Formal pavement marking and signing (NL - NO WIDENING)
- - - - Neighbourhood Bike Lane - Formal pavement marking and signing (NL - WIDENING)
- - - - Community Paved Shoulder Bikeway - Signed as bike route (CSB)

**Class 3 Bicycle Signed Route / Sidewalk**

- ==== Neighbourhood Signed Bike Route - No formal facility or pavement markings (NR)
- ==== Community Signed Bike Route - No formal facility or pavement markings (CR)

**Class 4 Trail Facility**

- ==== Footpath / Hiking Trail

## 6.3 Traffic Operations Review

### 6.3.1 Roadway Sections

Operations on roadway sections were assessed based on their volume to capacity (v/c) ratios. The assessment was based on existing traffic volumes and typical lane capacities. For collector and arterials roads, planning capacities are typically in the range of 700 to 1,000 vehicles per hour per lane (vph/l) depending on the class of the road and the traffic controls at intersections. The surrounding environment, access and the presence of turning lanes are among other factors that influence arterial road capacities. On that basis, existing capacities on minor roads such as Huntington Road and Kirby Road were estimated to be 700 vph/l, while a value of 800 vph/l was assumed for major arterials such as Major Mackenzie Drive, Islington Avenue and Highway 27.

The results of the assessment are summarized in Table 3. While most City roads operate with low v/c ratios, most of the arterial roads have v/c ratios greater than 0.5, with those of Highway 27 and Highway 50 greater than 0.9. Those operations indicate existing problems on Highway 50 and Highway 27 that require interventions. With background traffic growth and future development, traffic volumes on the other roadways are expected to increase, however improvements will most likely be required to maintain satisfactory operations.

### 6.3.2 Intersection Operations

Existing operations at intersections were also assessed on the basis of level of service (LOS) criteria. The LOS is based on the Highway Capacity Manual procedures which provide a measure for the quality of service experienced at intersections on the basis of the average delay per

vehicle. LOS is measured on a six letter scale with A representing excellent conditions and F representing over-capacity conditions. LOS is a direct measure of the delay experienced by the average motorist at signalized and unsignalized intersections. While level of service C or better is desirable in rural and semi-urban communities such as Nashville and Kleinburg, in dense urban areas with good levels of transit service, intersections operating at Level of Service D or E are often considered to be acceptable.

A summary of the resultant traffic operations is provided in Table 4 for the AM and PM peak hours. This information is based on the analysis undertaken in the Nashville West Community Plan (Block 61) Study.

The results indicate relatively good operations at most intersections except at the Highway 27/Major Mackenzie Drive intersection with LOS F during the AM peak hour and LOS E at Nashville Road/Highway 50 in the PM peak hour. Improvements will be required to address existing problems and to provide extra capacity necessary to accommodate future growth at similar or enhanced levels of service.

### 6.3.3 Heavy Truck Operations

Area residents and business owners have raised concerns about heavy truck traffic in the Study Area. Generally, truck traffic demand within the study area is high relative to other arterial facilities with elevated truck volumes on Study Area streets including Nashville Road. Heavy truck volumes



**Table 3. Operations on Roadway Sections**

Street	Traffic Volume	Year	2009 Volumes (assumes 2% growth)	# Lanes per direction	V/c
Major Mackenzie	750	2005	810	2	0.51
Rutherford Road	950	2005	1,030	2	0.64
Nashville Road	200	2007	210	1	0.26
Kirby Road	50	--	50	1	0.07
Highway 27	1,350	2005	1,480	2	0.91
Huntington Road	50	2005	60	1	0.09
Highway 50	1,800	2007	1,890	2	1.18
Teston Road	150	2005	160	1	0.23
Islington Avenue	450	2004	500	1	0.63

**Table 4. Traffic Operations at Intersections**

Intersection	Type	LOS - AM	LOS - PM
Nashville/Hwy 50	Signalized	B	E
Nashville/Huntington Rd	Unsignalized	C	D
Nashville/Hwy 27	Signalized	B	A
Hwy 50/Major Mackenzie	Signalized	B	B
Hwy 27/Major Mackenzie	Signalized	F	C
Huntington Rd./Major Mackenzie	Unsignalized	B	B

on Highway 50 are in excess of 100 heavy vehicles per hour per direction within the general vicinity of the Study Area. High truck volumes travelling to and from the CP Intermodal Terminal, and to the Petro-Pass site on Highway 50 at Rutherford Road/Castlemore Road contribute to traffic congestion, constrained truck manoeuvres, and pavement deterioration. Heavy vehicles represent 6-8% of peak direction demand and over 10% of off-peak direction demand.

## 6.4 Major Transportation Studies and Issues

The major transportation issues within the Study Area include traffic operational concerns, traffic volumes and heavy truck traffic. The operational concerns include poor operations with reduced levels of service on sections of Highway 50 and Highway 27 and at the Highway 27/

Major Mackenzie Drive intersection. Issues related to high volumes of heavy trucks on Study Area streets have also been noted in Section 6.3.3 above. A number of studies are currently underway and could address some of the identified issues, while also impacting the future travel patterns within the area. These studies include:

- Highway 427 Corridor Extension EA by Ministry of Transportation (MTO): This Study examined the extension of Highway 427 from Highway 7 to Major Mackenzie Drive. The proposed Highway 427 extension will be 6.6 km long and includes 3 interchanges at Langstaff Road, Rutherford Road and Major Mackenzie Drive. The freeway will have 6 lanes from Steeles Avenue to Rutherford Road and 4 lanes from Rutherford Road to Major Mackenzie Drive. There is a provision for median HOV lanes in each direction and a carpool lot at Rutherford Road interchange. The current

preferred design alternative involves an alignment that passes through the Huntington Road and Major Mackenzie Avenue intersection. That alternative will involve discontinuation of Huntington Road to the north and south of the proposed interchange.

- Nashville West Community Plan Study (Block 61): This Study was commissioned by the Nashville West Landowners Group to investigate alternative configurations of the new Highway 427 Interchange at Major Mackenzie Drive and Huntington Road in view of the recommendations of the Highway 427 EA Study.

As part of this Study, various transportation network modifications are being considered. The recommendations include several potential connections to Major Mackenzie Drive which in turn may impact the configuration of the eastern Major Mackenzie and Highway 427 ramp terminal intersection. A significant proposal involves construction of a new Huntington Road alignment west of the existing alignment between Major Mackenzie Drive and Nashville Road. The option would provide better connectivity of Huntington Road to the Highway 427 extension, thus ensuring a continuous north-south route to the proposed residential lands located north-west of the Study Area. The proposal is currently being reviewed by MTO.

- Western Vaughan Individual EA Study: This Study is being undertaken by the Regional Municipality of York to identify transportation deficiencies in Western Vaughan and to develop alternatives to address the problems. Specifically, the Study is examining improvements to Highway 27 and Major Mackenzie Drive which will include widening of both Highway

27 and Major Mackenzie Drive to six lanes and inclusion of HOV lanes on Highway 27 south of Major Mackenzie Drive. In addition, elimination of the jog on Major Mackenzie Drive at Highway 27 is recommended.

- GTA West Corridor EA Study by MTO. The purpose of this Study is to define a northern transportation corridor connecting the western cities of Kitchener, Waterloo and Guelph with the GTA. A preliminary corridor has been identified to run north of Kirby Road extending easterly to Highway 400.
- Peel Highway 427 Extension Area Transportation Master Plan Study: This Study is a joint study between the Region of Peel, City of Brampton and Town of Caledon in coordination with MTO, York Region and City of Vaughan. The objective was to carry out a comprehensive review of the future transportation network needs in Northeast Brampton and Southeast Caledon. Specific goals and objectives of the study were to identify the best ways to connect from municipal roads in the Region of Peel to Highway 427 and serve future transportation demands in the southern Peel-York boundary area. The Study recommends a combination of road widening and the provision of a new road connection from Highway 50 and Major Mackenzie Drive to Mayfield Road. The proposed arterial road will connect Mayfield Road in Peel and Major Mackenzie Drive to form a continuous route across both Regions of York and Peel. It will handle Provincial traffic to and from the Highway



427 extension. Traffic volumes are expected to be as high as 2,500 vehicles per hour in the morning peak period. Truck volumes could represent 10 to 20 percent of the total vehicular traffic, given the proximity to the CP Vaughan Intermodal Terminal.

The general recommendations of these studies together with those of the Regional initiatives including the Updated Regional TMP are illustrated in Figure 9. It should be noted that some of those recommendations are preliminary and may be subject to detailed Environmental Assessment studies. Nevertheless, they provide a good context through which to consider additional transportation options as part of the City's TMP Study.

## 6.5 Summary of Opportunities and Constraints

### 6.5.1 Opportunities

Considerable work has been undertaken or is underway that addresses some of the transportation issues in the Kleinburg - Nashville area. The findings of these studies offer good opportunities for enhancements of the overall transportation system in this focus area. They narrow down the range of options that can be considered as part of the current TMP study and focus it to filling in gaps and addressing new issues at the local level.

The approved land use pattern is also considered an opportunity, in that the land available for future development and intensification is small in comparison to the total acreage of the Study Area. The bulk of the available land is designated as protected valley areas, woodlots and parks that are not expected to generate significant additional traffic. Therefore, growth in traffic demand from the area is expected to be moderate and, as

a result, the need for improvements to provide additional capacity, as well as potential neighbourhood traffic problems are expected to be modest.

### 6.5.2 Constraints

The following constraints were identified:

- Existing layout of roadways that make it difficult to provide a grid system with jogs on Major Mackenzie Drive; Nashville Road/Stegman's Mill Road and Islington Avenue
- Existing land use patterns consisting of dispersed heritage communities, woodlots and protected lands in river valleys make it more difficult to provide efficient transportation systems
- The natural environmental factors including river valleys pose challenges and limitations in the implementation of road network and other infrastructure improvements

### 6.5.3 Next Steps

The next steps in the transportation analysis in the Kleinburg-Nashville Area include:

1. Confirming the urban design and land use proposals
2. Assessment of future traffic demands and identification of deficiencies
3. Development and evaluation of transportation alternatives
4. Final Recommendations to be included in the TMP - these will be undertaken in Phase 2 of the Vaughan TMP Study in concert with the on-going work of urban planning and design by The Planning Partnership.



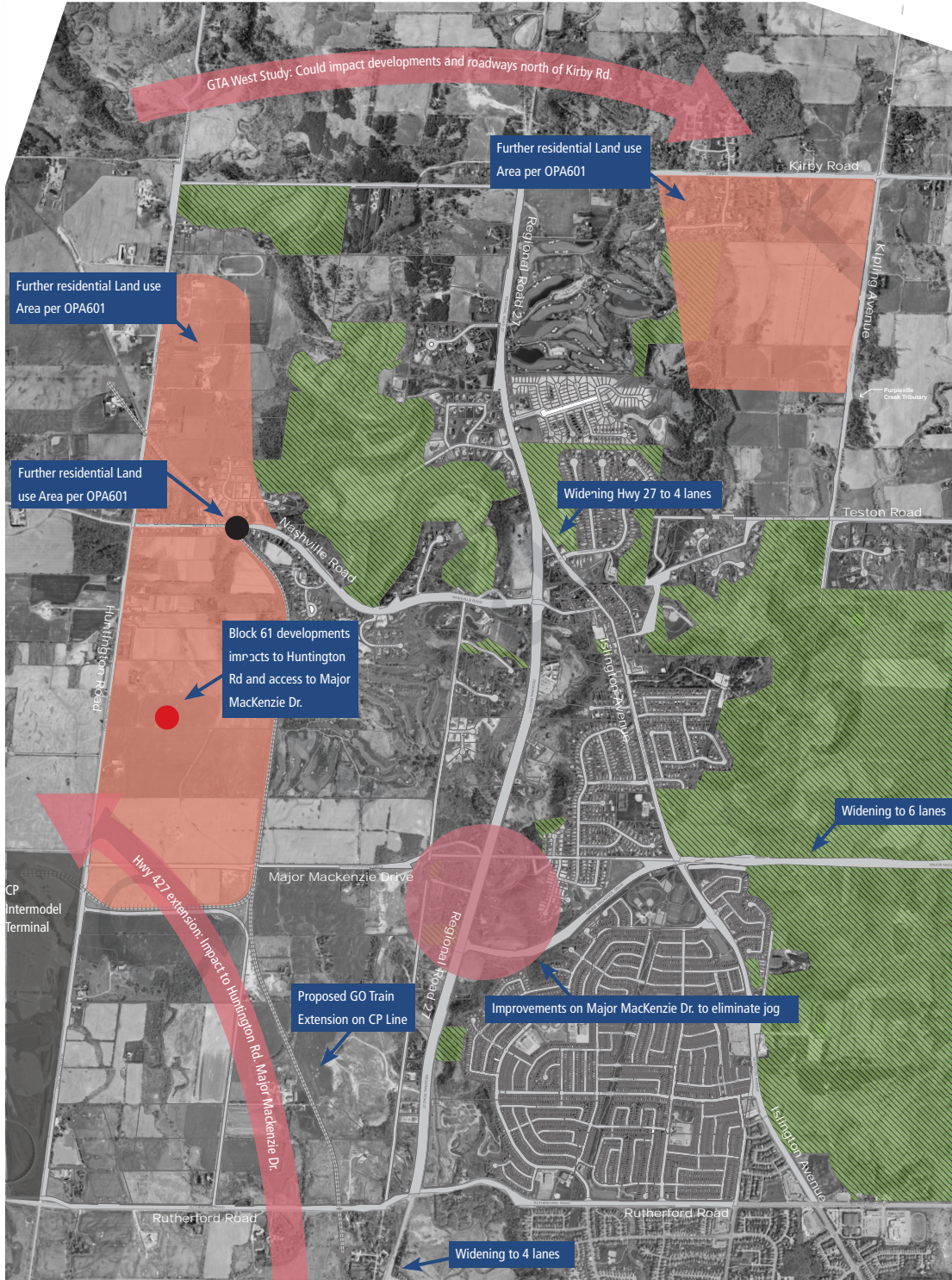


Figure 9.  
Improvements Recommended by Various  
On-going or Recently Completed Studies

Source: AECOM (2010)