St Marys Flamborough Quarry
Haul Route Study Workshop
(Public Event #3)

Workbook

January 9th, 2008

Name: _____

Address: _____

Email: _____

Please hand in your workbook at the end of the workshop.

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LIST OF SPECIALISTS

Specialty	Company	Contact
Natural Environment	Savanta Inc.	Tom Hilditch
Agricultural	Conna Consulting Inc	Jerry Hagarty
Land Uses	Glen Schnarr and Associates	Glen Schnarr
Social Impacts	Gartner Lee Limited	Tomasz Wlodarczyk
Cultural Heritage/ Archaeology	Archaeologix Inc.	Jim Wilson
Air Quality	RWDI Air Inc	John DeYoe
Noise	RWDI Air Inc	Scott Penton
Health Risk Assessment	RWDI Air Inc	Ron Haley
Geotech	Golder and Associates	Robert Douglas
Structural and Storm Water	RJ Burnside	Ian Drever
Transportation	iTRANS Consulting Inc.	Tyrone Gan

PART 1: EVALUATION CRITERIA AND INDICATORS

1.1 Instructions

The haul routes will be evaluated using a comprehensive set of criteria. Each criteria does not have to be applied equally in the evaluation, rather they can be weighted to reflect their relative importance. Each criterion is comprised of two or more indicators. Indicators are quantitative or qualitative factors that describe or define the criteria.

This workbook is structured to step participants through the process of ranking the indicators for each criteria first in order to establish definitions and context. At the end of Part 1, you will have the opportunity to rank each of the categories from 1 to 8; where 1 is most important and 8 is the least important.

1.2 Aquatic Environment / Surface

Definitions and Assistance

Aquatic Habitat:
Habitat that occurs in the presence of standing or flowing water.
Aquatic habitats in general can be classified as:

- Non-flowing waters like lakes and ponds,
- Slowly-flowing waters like some marshes and
- Flowing waters like rivers and streams.

Aquatic plants and animals are dependent on their habitat to satisfy their basic needs for food, shelter, moisture and reproduction.

Watercourse:
A natural or artificial channel for the passage of water, either continuously or intermittently. It sometimes forms a connecting link between two bodies of water. Watercourses generally include rivers, creeks, canals and tributaries.

Table 1 - Aquatic Environment / Surface

Criteria	Indicators	Crucial	Very Important	Important	Somewhat Important	Unimportant
Aquatic Environment / Surface						
Potential for disturbance to aquatic habitat.	Number, character and sensitivity of watercourses crossed.	❑	❑	❑	❑	❑
	Likelihood of increased runoff effects on these watercourses.	❑	❑	❑	❑	❑
Potential for removal of aquatic habitat from road improvements (e.g. bridge or culvert extensions or replacements).	Number of watercourse culverts/structures that could require extension to accommodate road improvements.	❑	❑	❑	❑	❑
	Magnitude of removal effects.	❑	❑	❑	❑	❑
	Sensitivity of habitat affected.	❑	❑	❑	❑	❑
Other:		❑	❑	❑	❑	❑

1.3 Terrestrial Environment

Definitions and Assistance

Terrestrial Habitat:
Habitats that are classified on land such as forests, shrub thickets, grasslands and wetlands.

Wildlife Corridor:
A wildlife corridor is a route comprising a continuous, or nearly continuous, stretch of open farmland, woodland and/or water, which facilitates the movement of wildlife species.

Wildlife corridors may include features such as hedges, canals, ditches, road and railway verges, and streams. The wildlife corridors perform various degrees of function and are assessed on a landscape level basis.

Species at Risk:
Species that are at risk of extinction, extirpation or endangerment globally or within a jurisdiction or region.

Species at Risk are defined as endangered, threatened or of special concern. Species at risk statuses are assigned nationally by the Committee On The Status of Endangered Wildlife in Canada (COSEWIC). In Ontario the Committee on the Status of Species at Risk in Ontario (COSSARO) recommends species for special concern, threatened and endangered designation to the Ministry of Natural Resources (MNR).

Table 2 - Terrestrial Environment

Criteria	Indicators	Crucial	Very Important	Important	Somewhat Important	Unimportant
Terrestrial Environment						
Potential for disturbance to natural habitat.	Number/length and character of sensitive habitats that the haul routes pass by.	❑	❑	❑	❑	❑
	Effects on vegetation from increased run-off from new road works, dust, emissions, etc.	❑	❑	❑	❑	❑
Potential for removal of natural habitat from road improvements.	Area, character and sensitivity of vegetation to be removed due to required road improvements.	❑	❑	❑	❑	❑
	Potential effects on wildlife as a result of habitat removal.	❑	❑	❑	❑	❑
Potential for increased wildlife kills.	Presence of wildlife corridors that the routes pass through.	❑	❑	❑	❑	❑
	Likelihood of increased wildlife kills as a result of increased truck traffic volumes.	❑	❑	❑	❑	❑
Other:		❑	❑	❑	❑	❑

1.4 Land Uses

Definitions and Assistance

Planned land uses:
The spatial arrangement of land uses resulting from land use planning, which is the process of protecting and improving the living, social, business, recreation and natural environments through the wise use and development of land.

Sensitive planned land uses:
Land uses which are vulnerable, less adaptable, and cannot withstand great environmental or social stress before breaking down. The aim of good planning is to minimize strain and conflict on the adaptability of existing uses.

Planned Development Area:
Planned development areas are areas that are designated for development, but are not yet built. These areas are identified in long range, comprehensive policy documents (i.e. Official Plans). The proposed alternative haul routes are located in areas governed by the Rural Hamilton Official Plan, Region of Halton Official Plan, Town of Milton Official Plan, and City of Burlington Official Plan.

Applicable Plans and Policies:
Traditional tools for land use planning and regulation include a combination of provincial, regional and local policy directives, legal instruments, administrative practices and means of promoting community participation in planning.

Applicable plans and policies related to the proposed haul routes include the Planning Act, Aggregate Resources Act, Niagara Escarpment Planning and Development Act, Greenbelt Act, Places To Grow Act, Provincial Policy Statement, Provincial Growth Plan, Niagara Escarpment Plan, Greenbelt Plan, Regional Municipality of Hamilton-Wentworth Official Plan, (former) Town of Flamborough Official Plan, and (newly adopted) Rural Hamilton Official Plan.

Conformity with Applicable Plans and Policies:
Applicable Provincial Plans do not identify the location of permitted haul routes / truck routes. That information is available in Regional and local Official Plans.

The proposed haul route alternatives involving roads in the Town of Milton are already identified as haul routes/truck routes in the applicable Official Plan. Certain haul route alternatives are proposed for roads not identified as haul routes / truck routes in the Rural Hamilton Official Plan. Depending on the haul route selected, an amendment to the relevant Official Plan may be required to identify the haul route.

Table 3 - Land Uses

Criteria	Indicators	Crucial	Very Important	Important	Somewhat Important	Unimportant
Land Uses						
Potential for disruptive effects to sensitive planned land uses.	Number, character of planned development areas.	❑	❑	❑	❑	❑
	Sensitivity of planned development to increased truck traffic.	❑	❑	❑	❑	❑
Potential for removal of planned land uses from road improvements.	Area and importance of planned land use eliminated by road improvements.	❑	❑	❑	❑	❑
Conformity with applicable plans and polices.	Degree of conformity with Official Plans.	❑	❑	❑	❑	❑
	Degree of conformity with the Greenbelt Plan.	❑	❑	❑	❑	❑
	Degree of conformity with the Niagara Escarpment Plan.	❑	❑	❑	❑	❑
Other:		❑	❑	❑	❑	❑

1.5 Social Environment and Community Impacts

Definitions and Assistance

Community:
The **community** is comprised of both a physical community of buildings, streets, open space and environmental features, and as a human community of individual people, groups and social institutions. The physical community is the substance of the community planning process (i.e. the types of roads and buildings that are built, their location, their maintenance of environmental features, and their relationship to one another are the outcome of the process.) The human community is the recipient of the outcome of the planning process, as well as the proponent in that process. The diverse values, objectives, features and interests that are inherent in any community become part of the process.

Number and proximity of residences potentially affected by truck traffic:
This is an indicator of the potential magnitude of the social impact (i.e., the number of people who might experience a change in their use and enjoyment of property).

Effects on the character of communities:
Community character refers to the unique or distinctive qualities of a community. These qualities can be physical in nature (i.e., land uses, geographic/environmental features); economic (i.e., types of business activities), and socio-cultural (i.e., population characteristics, ways of life, etc.).

Effects on the community function:
The effects on community cohesion (i.e., will the project affect how people interact in the community, how neighbourly the community is, etc.).

dB - Decibel:
The logarithmic units associated with sound.

Dust:
There are the roadway dust emissions that are related to particulate on or near the roadway that become airborne as a result of passing truck traffic. This varies on the size, weight and speed of the vehicles as well as the nature of the road surface.

Tailpipe emissions:

This portion of the assessment will evaluate air contaminant concentrations resulting from vehicle tailpipe emission travelling to and from the site along the proposed haul routes.

Health Risk:
There are two principal issues related to human health and air quality impacts associated with increased truck traffic that will be studied.

1. Inhalation of Particulate Matter (PM) from fugitive dust generated by truck traffic.

2. Inhalation of diesel exhaust from trucks.

Table 4 - Social Environment and Community Impacts

Criteria	Indicators	Crucial	Very Important	Important	Somewhat Important	Unimportant
Social Environment and Community Impacts						
Potential for disruption to residents.	Number and proximity of residences potentially affected by truck traffic.	❑	❑	❑	❑	❑
	Effects on the character of communities.	❑	❑	❑	❑	❑
	Effects on community function.	❑	❑	❑	❑	❑
	Number of residences expected to experience a > 5 dbA increase in noise levels over future baseline conditions for any given hour and a description of the magnitude of change.	❑	❑	❑	❑	❑
	Impact on air quality as a result of tail pipe emissions	❑	❑	❑	❑	❑
	Impact as a result of increased dust from additional truck traffic	❑	❑	❑	❑	❑
	Effects on community as a result of vibration from the increased truck traffic	❑	❑	❑	❑	❑
	Potential for health risks.	❑	❑	❑	❑	❑
Potential for disruption to users of recreation facilities, community features and institutions.	Number, proximity, character/sensitivity and level of use of recreation facilities, community features and institutions potentially affected by truck traffic.	❑	❑	❑	❑	❑

*** Bolded cells represent indicators suggested by the public at PIC #2**

Criteria	Indicators	Crucial	Very Important	Important	Somewhat Important	Unimportant
Potential for displacement/removal of residents & residential property from road improvements.	Number and area of residences/residential property required (partial removals).	❑	❑	❑	❑	❑
Potential for removal of recreation, community features & institutions.	Number, area and character of recreation, community features (including trails, bicycle routes, parks and open space) and institutional properties (partial removals).	❑	❑	❑	❑	❑
Other		❑	❑	❑	❑	❑

1.6 Economic Environment and Business Impacts

Definitions and Assistance

Potential for effect on agricultural operations:
Potential for haul route traffic or road improvements to restrict or compromise crop or livestock production, agricultural field or facility access, farm linkages among operationally related or associated land parcels or the safety of farm machinery movement along the proposed route.

Number and type of farms:
Number of individual farm properties involved in livestock, cash crop or specialty crop operations located along the proposed route alternatives.

Area and productivity/value of cropland removed for road improvements:
The area and relative productivity of cropland removed from production due to road improvements. The relative productivity of affected lands would be determined through the application of the Canada Land Inventory7-Class system of classification of soil capability for agriculture.

Number and area of farm properties required for road improvements:
The number and area of farm properties required for proposed road improvements including the identification of specific farm facilities or land/operational improvements and related agricultural investment potentially retired as a consequence of the improvements.

Table 5 - Economic Environments and Business Impacts

Criteria	Indicators	Crucial	Very Important	Important	Somewhat Important	Unimportant
Economic Environment and Business Impacts						
Potential for disruption to business enterprises.	Number, character/sensitivity, and proximity of businesses potentially affected by truck traffic.	❑	❑	❑	❑	❑
Potential for removal of business enterprises and/ or property.	Number, area, and character/sensitivity of businesses and business properties required (distinguish between partial and full removals).	❑	❑	❑	❑	❑
Potential for effect on property values.	Projected change in property values as a result of roadway use by quarry trucks.	❑	❑	❑	❑	❑
Potential for effect on agricultural operations.	Number and type of farms along the haul route potentially disrupted by truck traffic.	❑	❑	❑	❑	❑
	Area and productivity/value of cropland removed for road improvements.	❑	❑	❑	❑	❑
	Number and area of farm properties required for road improvements.	❑	❑	❑	❑	❑
Other		❑	❑	❑	❑	❑

1.7 Cultural and Heritage Resources

Definitions and Assistance

Built Heritage:
"Built heritage" is a very inclusive term, referring to any man-made structure determined to possess heritage significance. The process of evaluating heritage significance involves the consideration and balancing of numerous factors: the age of the resource, the quality of its design, its mode of construction, the importance of architects or contractors responsible for its erection, the importance of its owners or inhabitants, its role in relation to significant events or movements in the area where it is situated, its state of preservation (i.e., the extent to which its original features and character have been maintained), its condition, its uniqueness or its value as a representative of a distinctive local type, its landmark status, and its visual and/or thematic role within its immediate topological and geographic

Archaeological potential:
Archaeological potential is established by determining the likelihood that archaeological resources may be present on a subject property.

Table 6 - Cultural and Heritage Resources

Criteria	Indicators	Crucial	Very Important	Important	Somewhat Important	Unimportant
Cultural and Heritage Resources						
Potential for disturbance to built heritage/cultural features.	Number and character of built heritage features potentially affected by truck traffic.	❑	❑	❑	❑	❑
	Number of heritage properties removed from construction of road improvements (distinguish between partial and full removals).	❑	❑	❑	❑	❑
Potential for effects on archaeological resources.	Potential for effects on archaeological resources as a result of road improvements (as reflected through archaeological potential).	❑	❑	❑	❑	❑
Other		❑	❑	❑	❑	❑

1.8 Transportation

Definitions and Assistance

Level of service:
Level of service (LOS) is a measure by which transportation planners determine the quality of service on transportation infrastructure. LOS is a measure of traffic density (or a measure of congestion) and it is represented using the letters A through F, with A being best and F being worst.

Traffic diversion:
A temporary traffic detour.

Collision frequency and severity:
Collision frequency refers to the number of collisions and collision severity refers to severity of the collision. The severity can be classified as fatal, injury, or property damage only.

Transportation Mode:
A mode of transport is a term for the different kinds of transport facilities that are often used to transport people or cargo. Examples of transportation modes include: car, bus, truck, train, airplane, ship, etc.

Table 7 - Transportation

Criteria	Indicators	Crucial	Very Important	Important	Somewhat Important	Unimportant
Transportation						
Change in road service level.	Change in road level of service/congestion (considers road section, length, change in level of service).	❑	❑	❑	❑	❑
	Change in access levels for road users.	❑	❑	❑	❑	❑
	Effects on other roadways as a result of traffic diversion.	❑	❑	❑	❑	❑
	Potential for delay to quarry trucks at level rail crossings.	❑	❑	❑	❑	❑

Criteria	Indicators	Crucial	Very Important	Important	Somewhat Important	Unimportant
Potential for change in road safety level.	Potential for increase in collision frequency and severity.	❑	❑	❑	❑	❑
	Number of access points along the haul route.	❑	❑	❑	❑	❑
	Number of intersections along the haul route.	❑	❑	❑	❑	❑
	Truck-rail exposure index at level rail crossings (daily # quarry trucks x daily # trains).	❑	❑	❑	❑	❑
	Route length (km) with limited sight lines and/or steep grades.	❑	❑	❑	❑	❑
	School bus route lengths (km) along the haul route.	❑	❑	❑	❑	❑
	Conflict with agricultural vehicles and equipment.	❑	❑	❑	❑	❑
Potential for impact on alternative transportation modes.	Potential for conflicts with cyclists.	❑	❑	❑	❑	❑
	Potential for conflicts with pedestrians.	❑	❑	❑	❑	❑
Other		❑	❑	❑	❑	❑

1.9 Cost

Criteria	Indicators	Crucial	Very Important	Important	Somewhat Important	Unimportant
Cost						
Estimated infrastructure costs.	Estimated cost for all required road and other infrastructure improvements.	❑	❑	❑	❑	❑
	Potential for additional costs to the municipality(s) (e.g. impacts to municipal maintenance operations).	❑	❑	❑	❑	❑
Other		❑	❑	❑	❑	❑

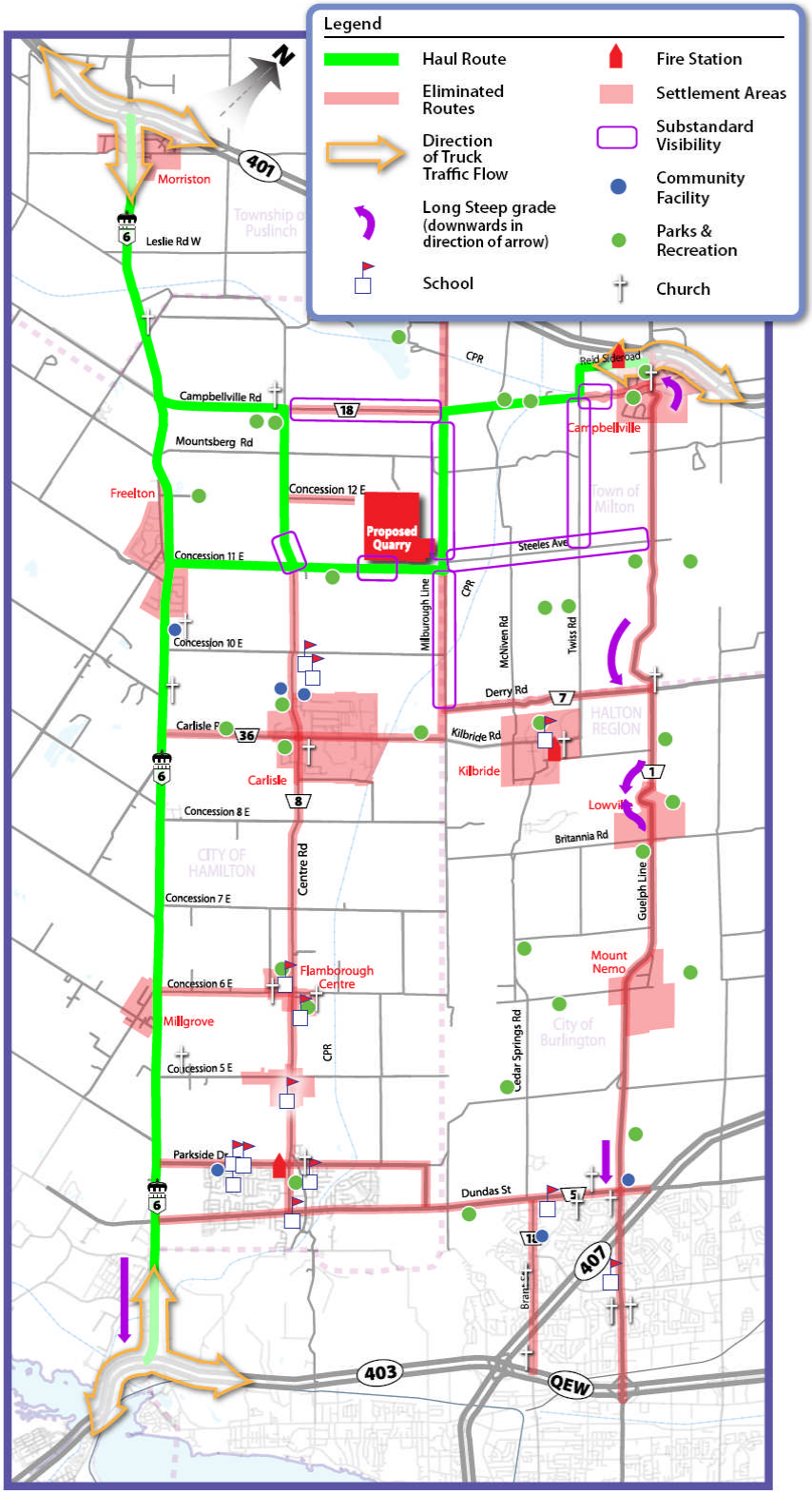
1.10 Rank the Criteria Categories

Rank the follow from 1 to 8 with 1 being the most important and 8 being the least important

Criteria Category	Rank
Aquatic Environmental / Surface Water	
Terrestrial Environment	
Land Uses	
Social Environment and Community Impacts	
Economic Environment and Business Impacts	
Cultural and Heritage Resources	
Transportation	
Cost	
Other	

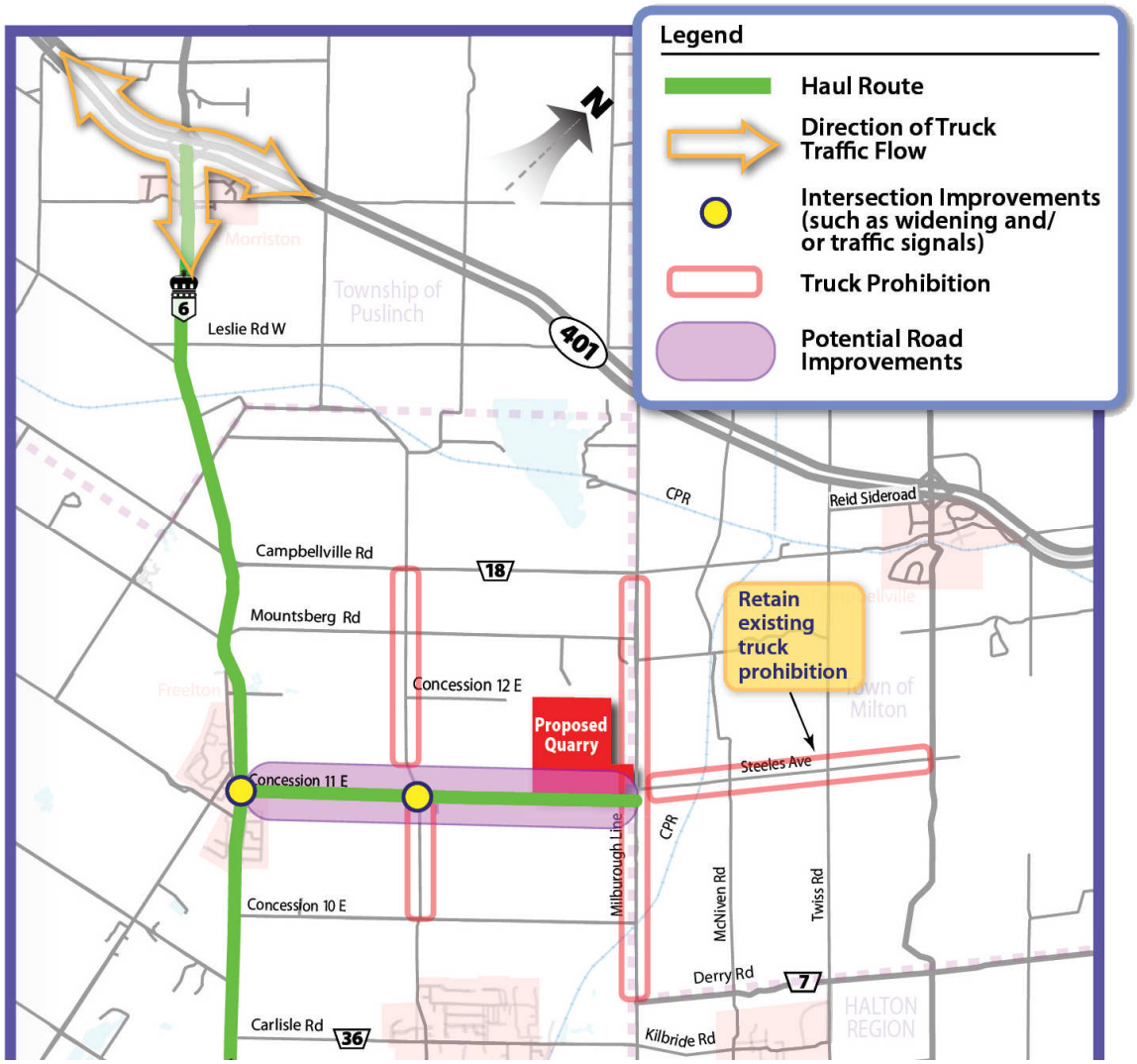
PART 2: HAUL ROUTE OPTIONS

1.1 Short List of Alternative Haul Routes



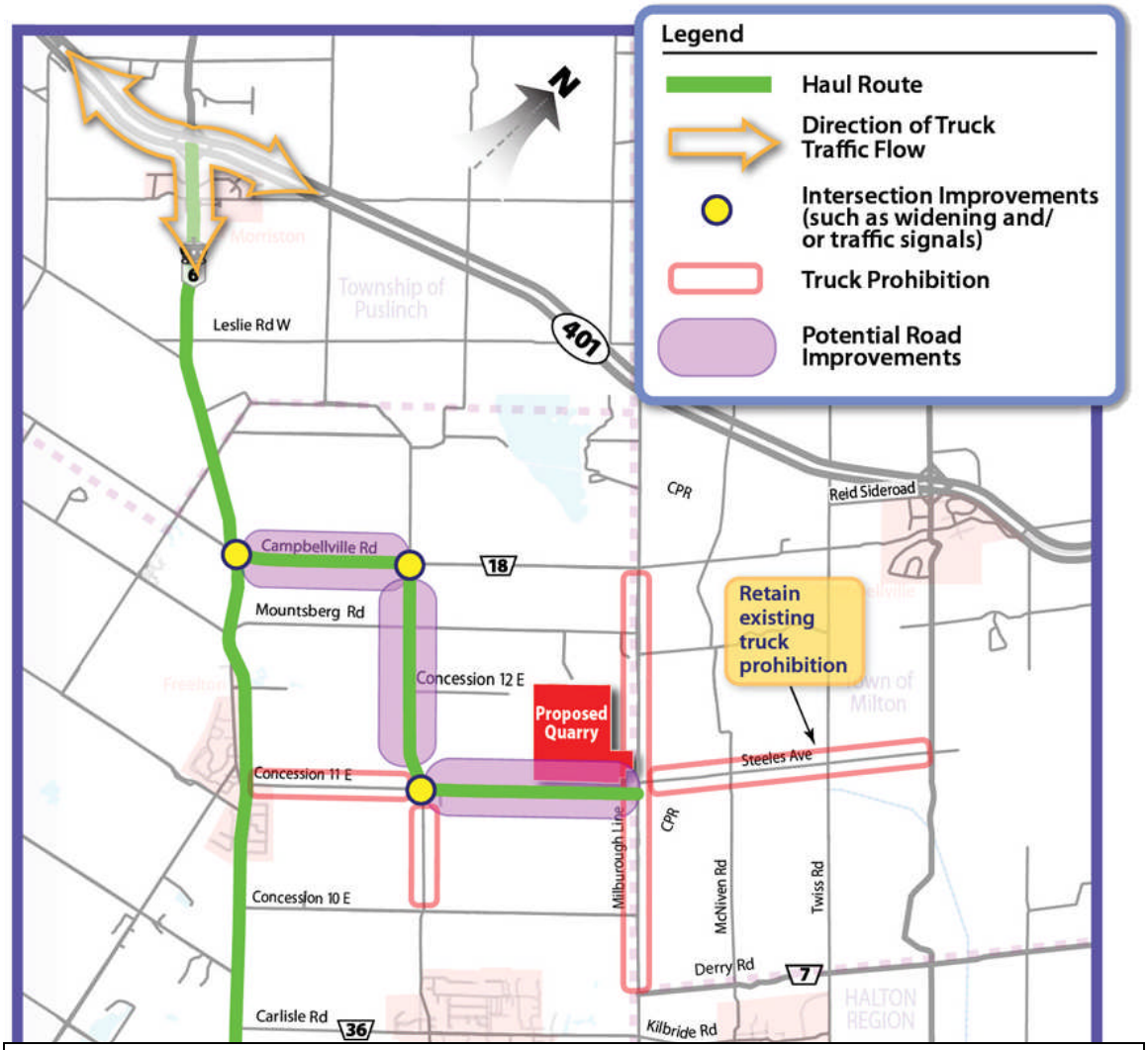
Notes: _____

1.2 Alternative Haul Route 1



Notes: _____

1.3 Alternative Haul Route 2



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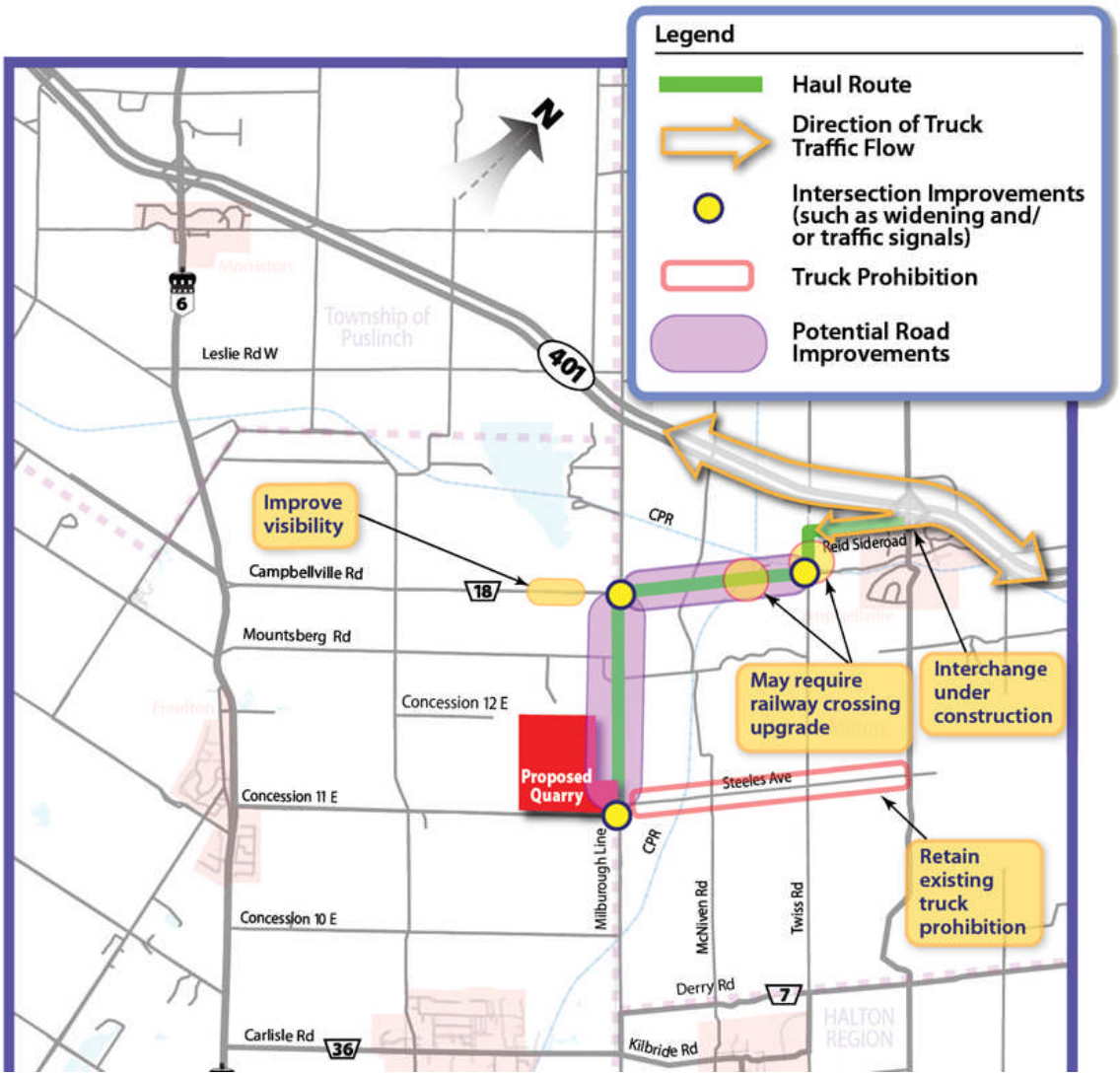
1.4 Alternative Haul Route 3



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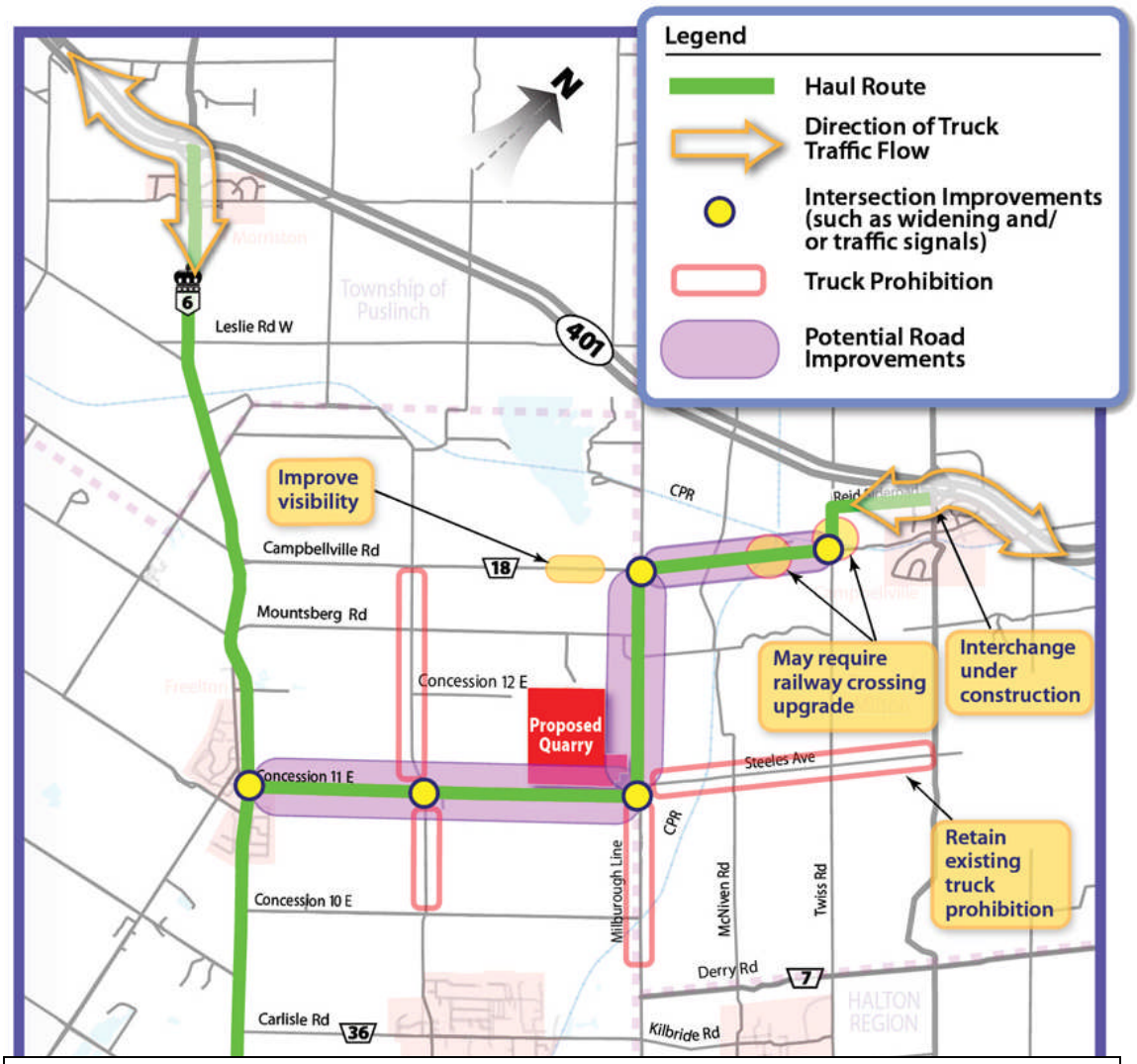
1.5 Alternative Haul Route 4



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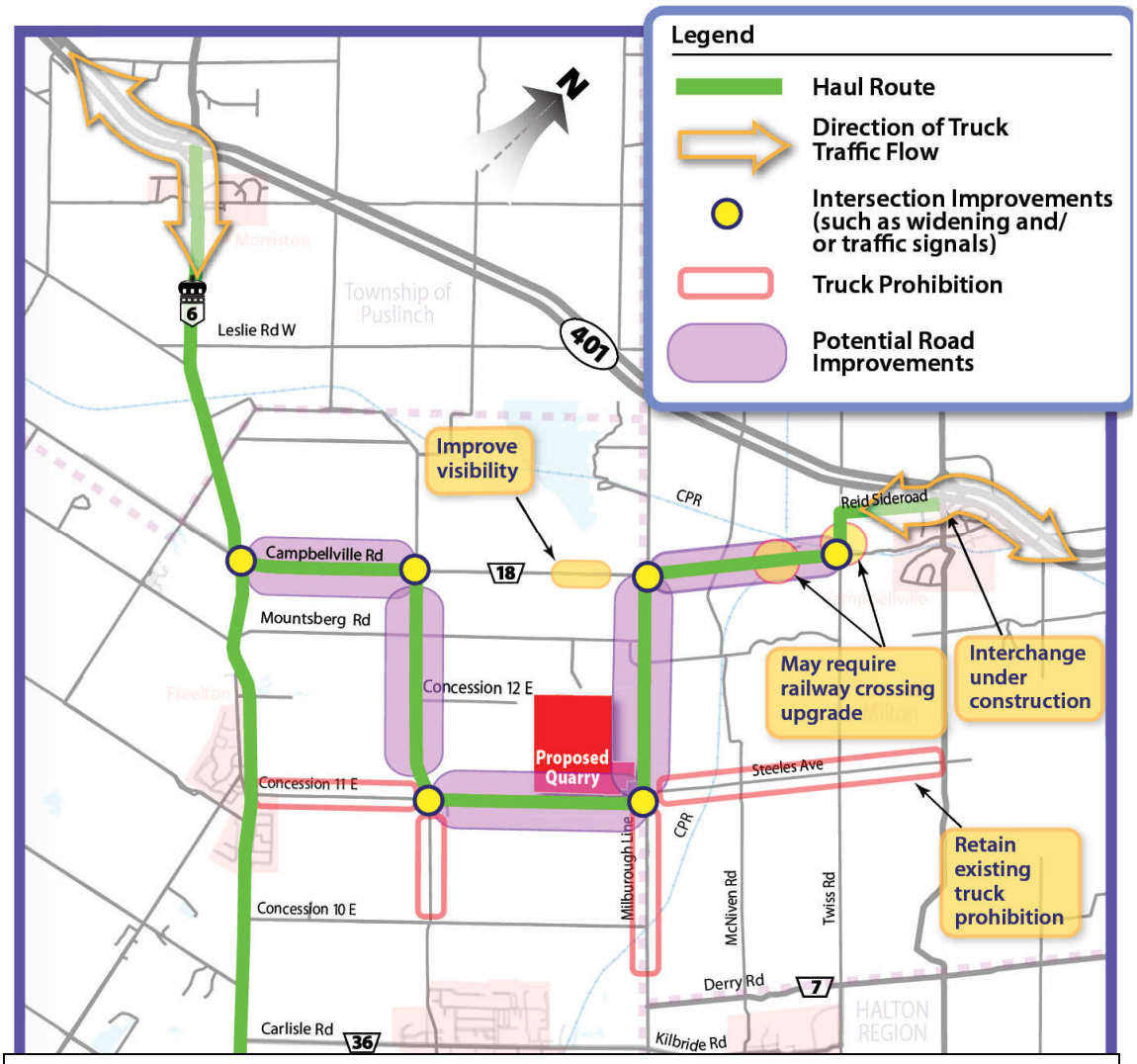
1.6 Alternative Haul Route 5



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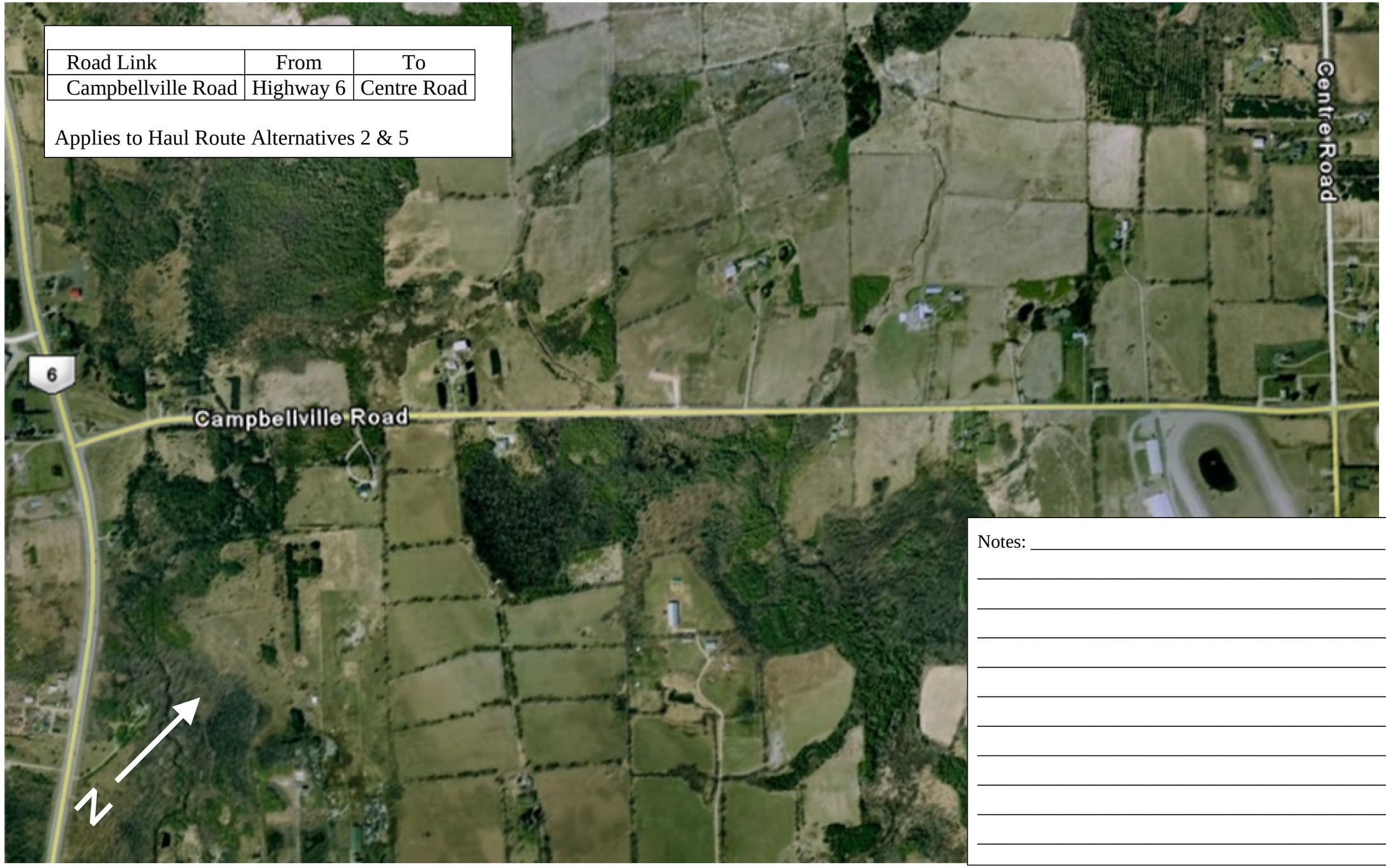
Road Link	From	To
Campbellville Road	Highway 6	Centre Road

Applies to Haul Route Alternatives 2 & 5



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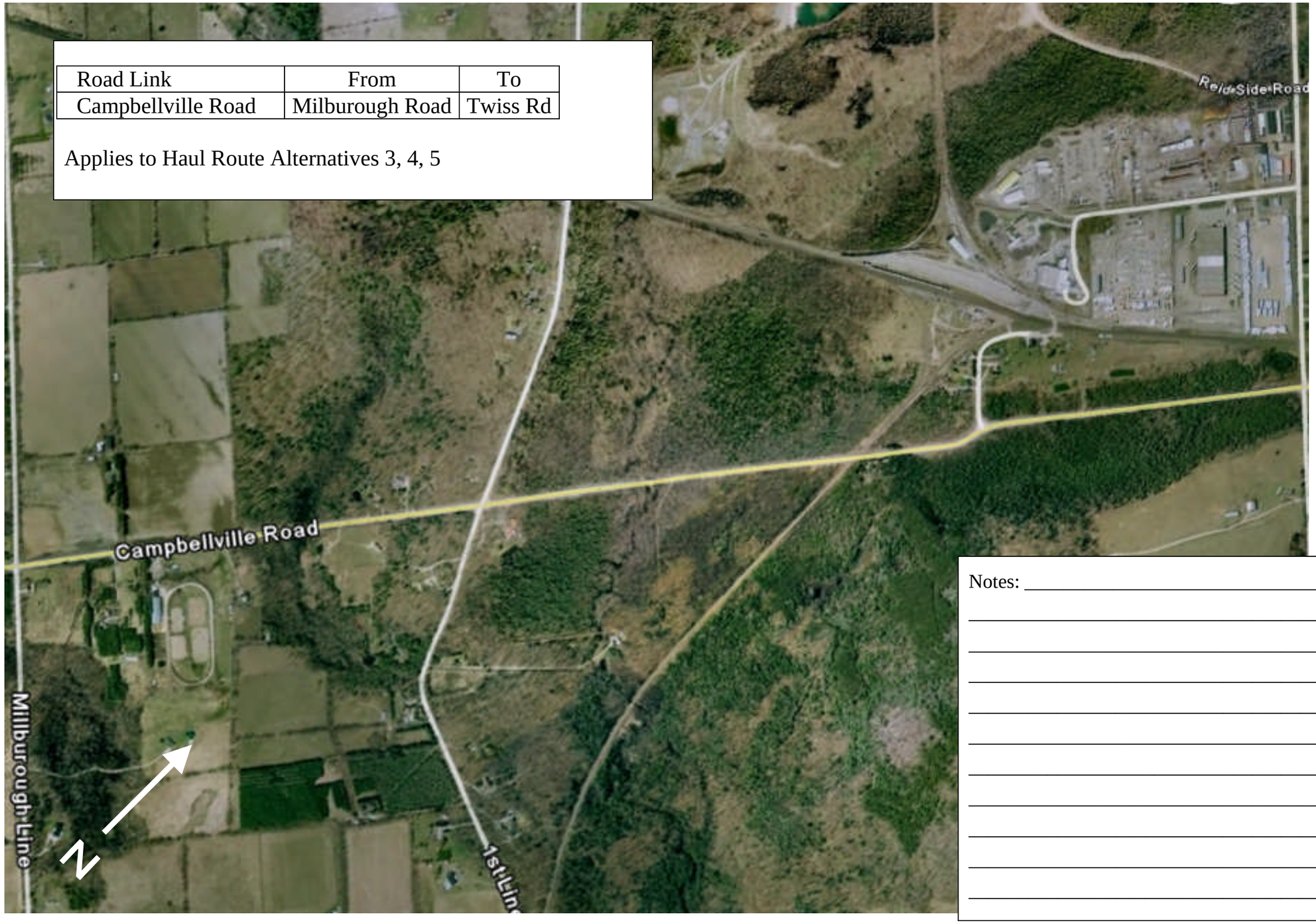
Road Link	From	To
Campbellville Road	Milburough Road	Twiss Rd

Applies to Haul Route Alternatives 3, 4, 5



Notes: _____

Road Link	From	To
Twiss Road	Campbellville Road	Reid Sideroad
Reid Sideroad	Twiss Road	Guelph Line/Main Street North

Applies to Haul Route Alternatives 3, 4, 5

Notes: _____

Road Link	From	To
Concession 11 E	Highway 6	Centre Road

Applies to Haul Route Alternatives 1 & 4

Notes: _____

Road Link	From	To
Concession 11 E	Centre Road	Milburough Line

Applies to Haul Route Alternatives 1, 4, & 5

Notes: _____

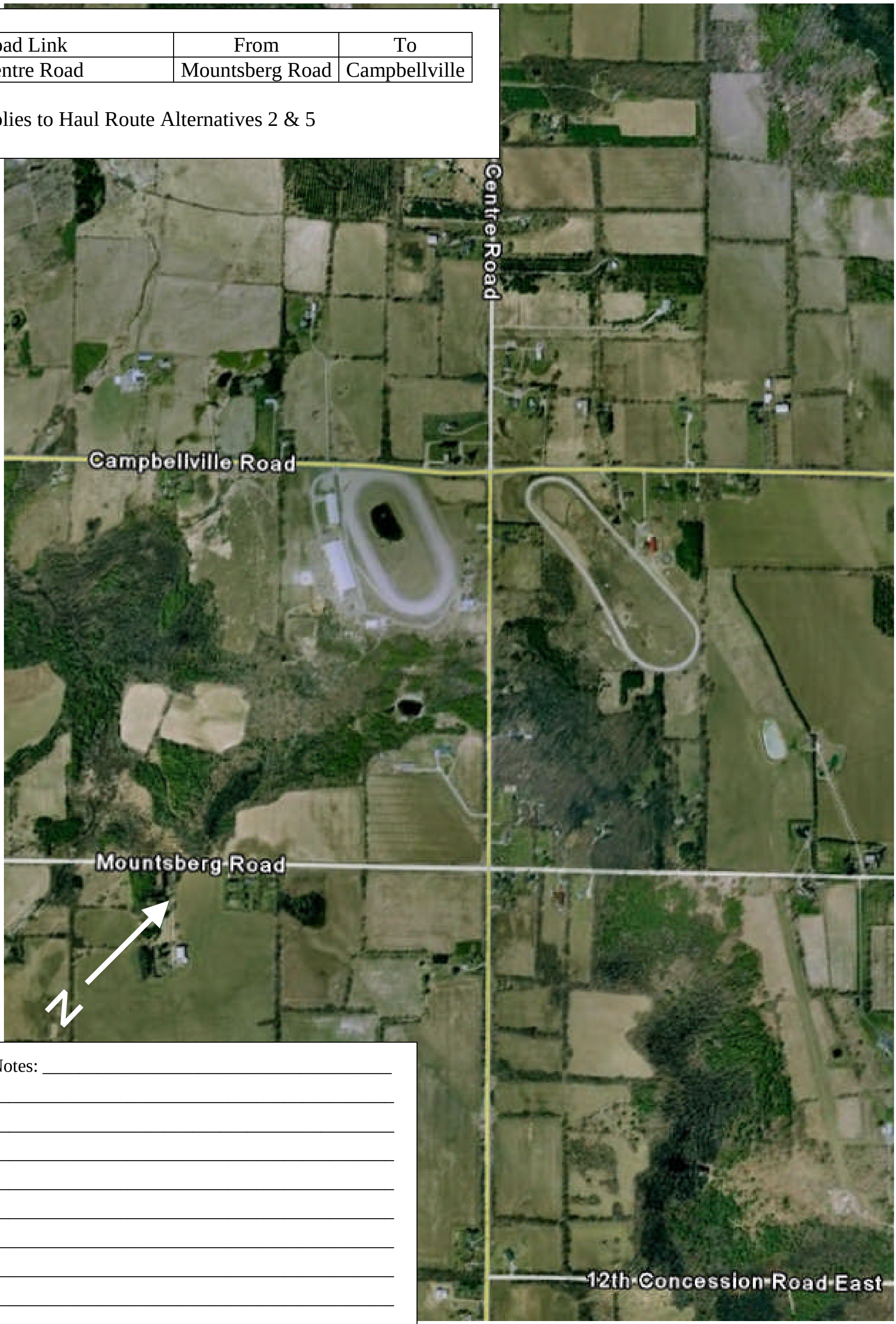
Notes: _____

Road Link	From	To
Centre Road	Concession 11E	Mountsberg Road

Applies to Haul Route Alternatives 2 & 5

Road Link	From	To
Centre Road	Mountsberg Road	Campbellville

Applies to Haul Route Alternatives 2 & 5



Notes: _____

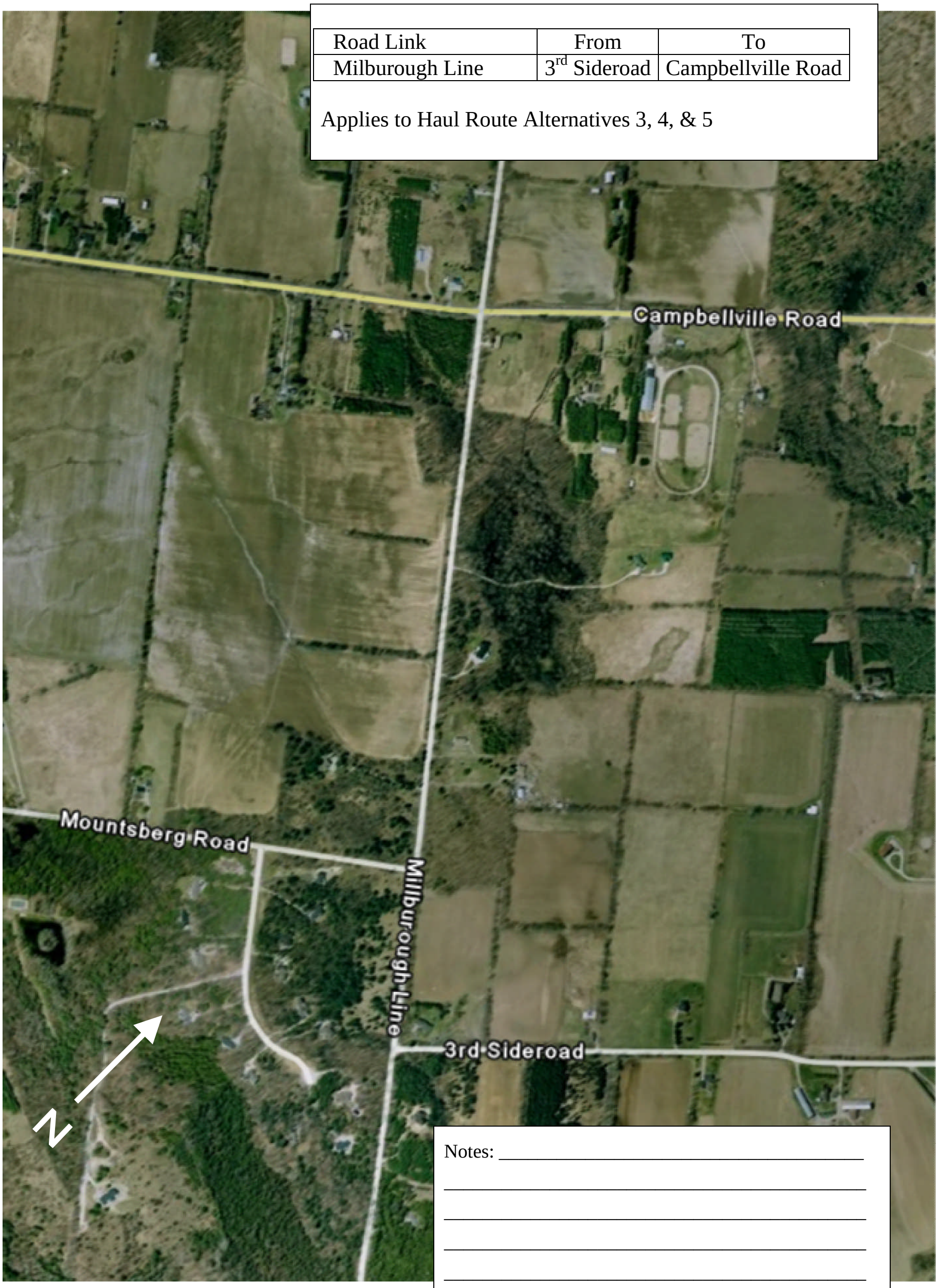
Road Link	From	To
Milburough Line	Concession 11E	3rd Sideroad

Applies to Haul Route Alternatives 3, 4, & 5

Notes: _____

Road Link	From	To
Milburough Line	3rd Sideroad	Campbellville Road

Applies to Haul Route Alternatives 3, 4, & 5



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