



Ministry of Transportation, Ontario

**407 TRANSITWAY:
TRANSPORTATION STUDY OF CONSTRUCTION STAGING
IMPACTS ON ARTERIAL ROAD CAPACITY**

FINAL REPORT

DECEMBER 2010



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1. INTRODUCTION

This document summarizes the findings of intermediate analysis of potential traffic impacts on arterial roadways related to the construction staging of the 407 Transitway (**Exhibit 1-1**). This analysis is based on the potential construction staging from the 60% preliminary design drawings (GWP 252-96-00).

The goals of the traffic analysis is to identify traffic operation issues of temporary geometric layouts on major arterial roads during the construction period (year 2023), and determine the ability of reduced roadway capacity to accommodate projected traffic volumes.

Assessments conducted as part of the traffic analysis include the following:

- Background traffic conditions with and without construction staging;
- Road congestion based on arterial roadway capacity; and
- Traffic implications on the arterial road network with alternate geometric configurations to mitigate potential traffic congestions during construction staging of 407 Transitway.

Exhibit 1-1: 407 Transitway Alignment Map



2. TRAFFIC ANALYSIS

2.1 Key Assumptions

Specific key analysis assumptions and arterial road configurations employed for the traffic analysis are as follows:

- **Traffic Growth** – 2023 Future Background Condition traffic volumes take into account general corridor traffic growth on the Study Area arterial road network. For the purposes of this traffic analysis, existing traffic volumes were factored up by 1.15, which represents a growth rate of 1% per annum compounded over 14 years (between 2009 and 2023). The growth rate is estimated based on the forecasts obtained from the York Region Travel Demand Forecasting Model. This factor was applied to all movements along the Bathurst Street and Highway 7 corridor;
- **Nominal Roadway Capacity (Before Construction)** – The nominal capacity of arterial roads was assumed at 950 per hour per lane per direction. This estimation is based on the regional traffic operation guidelines for arterial roads;
- **Nominal Roadway Capacity (During Construction)** – The nominal capacity of arterial roads was assumed at 850 per hour per lane per direction. This estimation assumes that construction staging and temporary traffic control will reduce the arterial road capacity by 10~12%. Traffic operation during construction will be similar to typical urban traffic conditions during commuter peak hours; and
- **Evaluation Measure** – Volume to capacity ratios were used as the primary evaluation measure for measuring congestion during 407 Transitway construction.

2.2 Arterials Analyzed

The subsequent sections of this report illustrate the traffic operation impact under the Future Background (2023) Condition (with and without the 407 Transitway construction staging) on the following arterial roadways:

- Section 3: Jane Street;
- Section 4: Keele Street;
- Section 5: Dufferin Street;
- Section 6: Bathurst Street;
- Section 7: Bayview Avenue;
- Section 8: Leslie Street
- Section 9: Highway 404 Northbound 407 ETR Off-Ramps;
- Section 10: Rodick Road; and
- Section 11: Warden Avenue.

3. JANE STREET

The 407 Transitway alignment will cross Jane Street just south of the Highway 407 corridor and north of Steeles Avenue West. The location of the Jane Street construction zone is shown in **Exhibit 3-1**. An aerial view of the construction zone and a current street view of Jane Street near the construction zone are shown in **Exhibit 3-2** and **Exhibit 3-3**, respectively.

Exhibit 3-1: Location of Jane Street Construction Zone

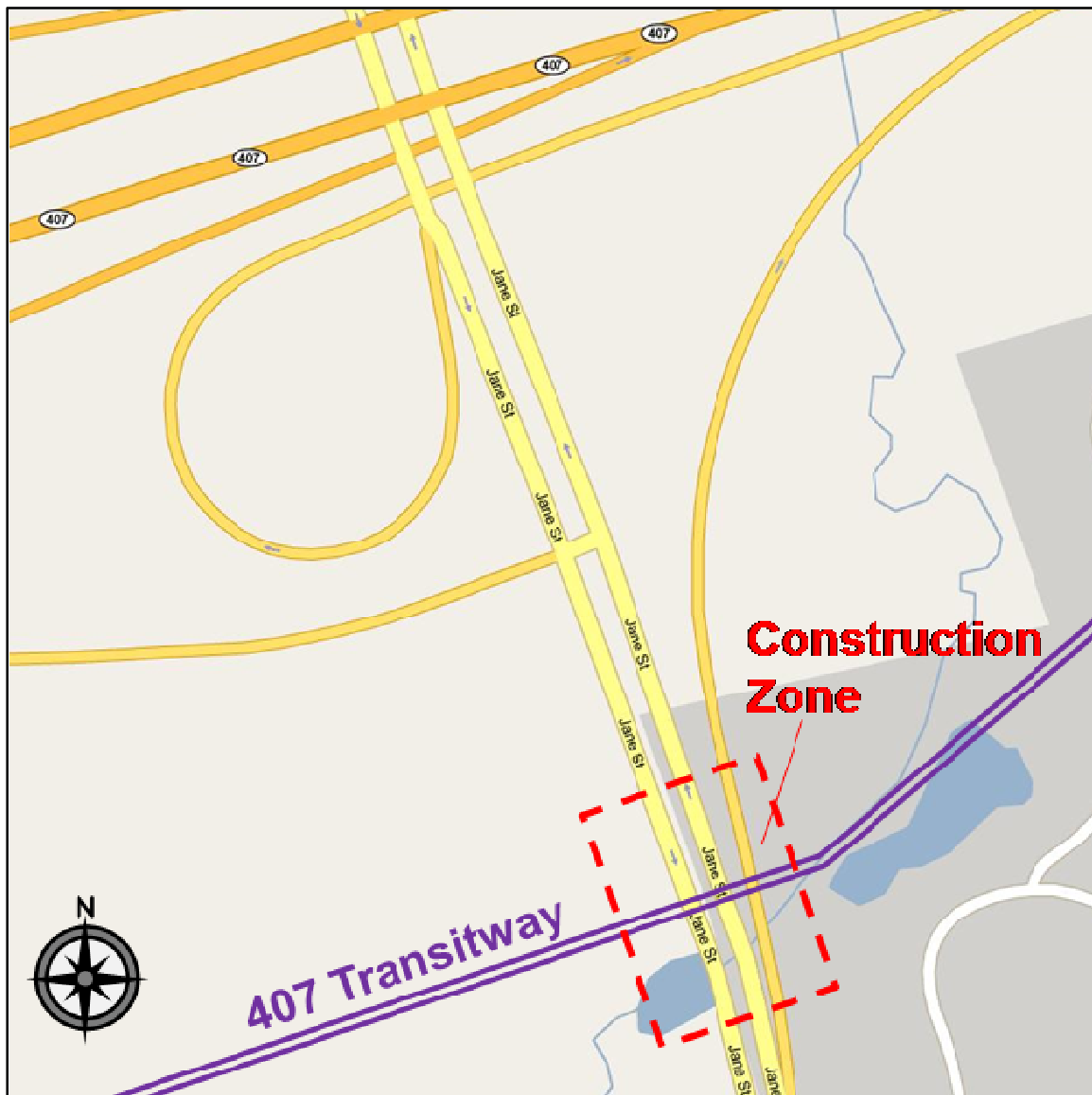


Exhibit 3-2: Aerial View of Jane Street Construction Zone



Exhibit 3-3: Street View of Jane Street Looking South



3.1 Construction Staging

Construction of the Highway 407 Transitway at Jane Street is projected to occur in 4 stages:

- **Stage 1** – The existing 407 southeast ramp (northbound Jane Street access to 407 eastbound) will be closed for construction access with a temporary ramp detour built further north. Jane Street will have two northbound through lanes and one shared northbound through/right-turn lane (onto temporary ramp detour); and three southbound through lanes.
- **Stage 2** – The 407 southeast ramp (northbound Jane Street access to 407 eastbound) will reopen and the temporary ramp detour will be dismantled. The east cross section of Jane Street will be closed for construction access. Jane Street will have two northbound through lanes; two southbound through lanes; and one reversible northbound / southbound centre lane.
- **Stage 3** – The east cross section of Jane Street will reopen and the centre cross section of Jane Street will be closed for construction access. Jane Street will have three northbound through lanes; and three southbound through lanes.
- **Stage 4** – The centre cross section of Jane Street will reopen and the west cross section of Jane Street will be closed for construction access. Jane Street will have two northbound through lanes; two southbound through lanes; and one reversible northbound / southbound centre lane.

The 60% preliminary design construction stage drawings for Jane Street are in **Appendix A**. The northbound and southbound lane configurations for the pre-construction condition and by construction stage are shown in **Exhibit 3-4**.

Exhibit 3-4: Jane Street Lane Configuration By Construction Stage

Construction Stage	Lane Configuration									
	Southbound					Northbound				
	Lane 5	Lane 4	Lane 3	Lane 2	Lane 1	Lane 1	Lane 2	Lane 3	Lane 4	Lane 5
Pre-Construction Condition			↓	↓	↓	↑	↑	↑		
Stage 1			↓	↓	↓	↑	↑	↑→		
Stage 2			↓	↓		↕ Reversible Lane	↑	↑	↕↑ Construction Site Access	
Stage 3		↓	↓	↓		↕↑ Construction Site Access	↑	↑	↑	
Stage 4		↕↑ Construction Site Access	↓	↓		↕ Reversible Lane	↑	↑		

3.2 Traffic Operations Analysis

The results of the Jane Street traffic operations analysis are summarized in **Exhibit 3-5** and **Exhibit 3-6** for the weekday am and pm peak hours, respectively.

In the pm peak hour, southbound traffic operations on Jane Street near the 407 Highway westbound off-ramp terminal are projected to operate at capacity conditions. During the temporary construction period, one additional northbound lane will be required in the pm peak hour along this section of Jane Street (approximately 300 metres) to increase northbound roadway capacity to handle traffic. Temporarily reversing one southbound lane to a northbound lane is projected to eliminate over-capacity conditions on northbound traffic operations but is projected to cause southbound traffic operations on Jane Street to operate above capacity conditions. No additional measures will be required in the am peak period.

Exhibit 3-5: Impact of Construction of 407 Crossings on Jane Street Capacity (Weekday Am Peak Hour)

Type Of Count ⁽¹⁾	Location(s)	Construction Sequence	Traffic Volumes				Number of Lanes		Nominal Capacity (pcu/hr)	Volume to Capacity Ratio			
			North of 407 ETR		South of 407 ETR					North of 407 ETR		South of 407 ETR	
			Northbound	Southbound	Northbound	Southbound	Northbound	Southbound		Northbound	Southbound		
BACKGROUND CONDITION (2023) – WITHOUT CONSTRUCTION													
TMC	Hwy. 407 WB Off-Ramp @ Jane Street	Stage 1~4	1,690	1,839	1,331	1,923	3	3	950	0.59	0.65	0.47	0.67
ATR	North of 407 ETR / South of 407 ETR	Stage 1, 3	1,208	1,263	1,259	1,283	3	3	950	0.42	0.44	0.44	0.45
		Stage 2, 4	1208	1263	1259	1283	3	3	950	0.42	0.44	0.44	0.45
BACKGROUND CONDITION (2023) – WITH CONSTRUCTION													
TMC	Hwy. 407 WB Off-Ramp @ Jane Street	Stage 1~4	1,690	1,839	1,331	1,923	3	3	850	0.66	0.72	0.52	0.75
ATR	North of 407 ETR / South of 407 ETR	Stage 1, 3	1,208	1,263	1,259	1,283	3	3	850	0.47	0.50	0.49	0.50
		Stage 2, 4	1208	1263	1259	1283	2	3	850	0.71	0.50	0.74	0.50

1. TMC = Turning Movement Counts; ATR = Automatic Traffic Recorder;

= Reversible Lane Strategy

Red = V/C Ratio > 1.0

Exhibit 3-6: Impact of Construction of 407 Crossings on Jane Street Capacity (Weekday Pm Peak Hour)

Type Of Count ⁽¹⁾	Location(s)	Construction Sequence	Traffic Volumes				Number of Lanes		Nominal Capacity (pcu/hr)	Volume to Capacity Ratio			
			North of 407 ETR		South of 407 ETR					North of 407 ETR		South of 407 ETR	
			Northbound	Southbound	Northbound	Southbound	Northbound	Southbound		Northbound	Southbound	Northbound	Southbound
BACKGROUND CONDITION (2023) – WITHOUT CONSTRUCTION													
TMC	Hwy. 407 WB Off-Ramp @ Jane Street	Stage 1~4	1,671	2,930	1,331	2,468	3	3	950	0.59	1.03	0.47	0.87
ATR	North of 407 ETR / South of 407 ETR	Stage 1, 3	1,077	1,723	1,833	1,874	3	3	950	0.38	0.60	0.64	0.66
		Stage 2, 4	1077	1723	1833	1874	3	3	950	0.38	0.60	0.64	0.66
BACKGROUND CONDITION (2023) – WITH CONSTRUCTION (WITHOUT REVERSIBLE LANE)													
TMC	Hwy. 407 WB Off-Ramp @ Jane Street	Stage 1~4	1,671	2,930	1,331	2,468	3	3	850	0.66	1.15	0.52	0.97
ATR	North of 407 ETR / South of 407 ETR	Stage 1, 3	1,077	1,723	1,833	1,874	3	3	850	0.42	0.68	0.72	0.73
		Stage 2, 4	1077	1723	1833	1874	2	3	850	0.63	0.68	1.08	0.73
BACKGROUND CONDITION (2023) – WITH CONSTRUCTION (WITH REVERSIBLE LANE)													
TMC	Hwy. 407 WB Off-Ramp @ Jane Street	Stage 1~4	1,671	2,930	1,331	2,468	3	3	850	0.66	1.15	0.52	0.97
ATR	North of 407 ETR / South of 407 ETR	Stage 1, 3	1,077	1,723	1,833	1,874	3	3	850	0.42	0.68	0.72	0.73
		Stage 2, 4	1,077	1,723	1,833	1,874	3	2	850	0.42	1.01	0.72	1.10

1. TMC = Turning Movement Counts; ATR = Automatic Traffic Recorder;

= Reversible Lane Strategy

Red = V/C Ratio > 1.0

4. KEELE STREET

The 407 Transitway alignment will cross Keele Street just south of the Highway 407 corridor and north of Snidercroft Road. The location of the Keele Street construction zone is shown in **Exhibit 4-1**. An aerial view of the construction zone and a current street view of Keele Street near the construction zone are shown in **Exhibit 4-2** and **Exhibit 4-3**, respectively.

Exhibit 4-1: Location of Keele Street Construction Zone



Exhibit 4-2: Aerial View of Keele Street Construction Zone

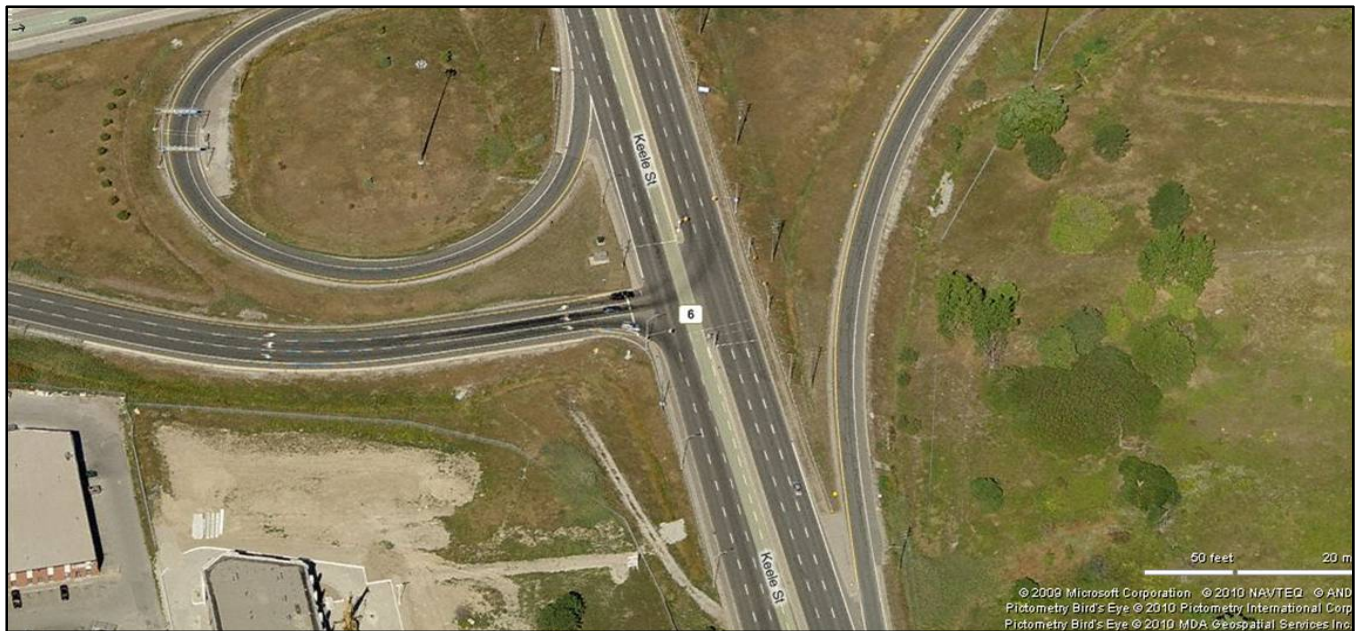


Exhibit 4-3: Street View of Keele Street Looking North



4.1 Construction Staging

Construction of the Highway 407 Transitway at Keele Street is projected to occur in 3 stages:

- **Stage 1** – The existing 407 southeast ramp (northbound Keele Street access to 407 eastbound) will be closed for construction access with a temporary ramp detour built further north. Keele Street will have three northbound through lanes and right-turn lane (onto temporary ramp detour); and three southbound through lanes.
- **Stage 2** – The existing 407 southeast ramp (northbound Keele Street access to 407 eastbound) will reopen and the temporary ramp detour will be dismantled. The east cross section of Keele Street will be closed for construction access. Keele Street will have two northbound through lanes; two southbound through lanes; and one reversible northbound / southbound centre lane.
- **Stage 3** – The east cross section of Keele Street will reopen and the west cross section of Jane Street will be closed for construction access. Keele Street will have two northbound through lanes; and two southbound through lanes; and one reserved reversible northbound / southbound centre lane.

The 60% preliminary design construction stage drawings for Keele Street are in **Appendix B**. The northbound and southbound lane configurations for the pre-construction condition and by construction stage are shown in **Exhibit 4-4**.

Exhibit 4-4: Keele Street Lane Configuration By Construction Stage

Construction Stage	Lane Configuration									
	Southbound					Northbound				
	Lane 5	Lane 4	Lane 3	Lane 2	Lane 1	Lane 1	Lane 2	Lane 3	Lane 4	Lane 5
Pre-Construction Condition			↓	↓	↓	↑	↑	↑		
Stage 1			↓	↓	↓	↑	↑	↑	↱	
Stage 2			↓	↓		↕ Reversible Lane	↑	↑	↕ Construction Site Access	
Stage 3	↕ Construction Site Access		↓	↓		↕ Reversible Lane	↑	↑		

4.2 Traffic Operations Analysis

The results of the Keele Street traffic operations analysis are summarized in **Exhibit 4-5** and **Exhibit 4-6** for the weekday am and weekday pm peak hours, respectively.

In the pm peak hour, northbound traffic operations on Keele Street near the 407 Highway eastbound off-ramp terminal are projected to operate at over-capacity conditions. During the temporary construction period, one additional northbound lane will be required in the pm peak hour along this section of Keele Street (approximately 300 metres) to increase northbound roadway capacity to handle traffic. Temporarily reversing one southbound lane to a northbound lane is projected to eliminate over-capacity conditions on northbound traffic operations while southbound traffic operations on Keele Street are projected to continue to operate below capacity conditions. No additional measures will be required in the am peak period.

Exhibit 4-5: Impact of Construction of 407 Crossings on Keele Street Capacity (Weekday Am Peak Hour)

Type Of Count ⁽¹⁾	Location(s)	Construction Sequence	Traffic Volumes				Number of Lanes		Nominal Capacity (pcu/hr)	Volume to Capacity Ratio				
			North of 407 ETR		South of 407 ETR					North of 407 ETR		South of 407 ETR		
			Northbound	Southbound	Northbound	Southbound	Northbound	Southbound		Northbound	Southbound			
BACKGROUND CONDITION (2023) – WITHOUT CONSTRUCTION														
TMC	407 EB off-ramp @ Keele Street	Stage 1	1783	1659	1223	2237	3	3	950	0.63	0.58	0.43	0.78	
		Stage 2~3	1783	1659	1223	2237	3	3	950	0.63	0.58	0.43	0.78	
	Snidercroft Road @ Keele Street	Stage 2~3	1091	2432	1095	2035	3	3	950	0.38	0.85	0.38	0.71	
ATR	North of 407 ETR / South of 407 ETR	Stage 2~3	1643	1640	1222	1927	3	3	950	0.58	0.58	0.43	0.68	
BACKGROUND CONDITION (2023) – WITH CONSTRUCTION														
TMC	407 EB off-ramp @ Keele Street	Stage 1	1783	1659	1223	2237	3	3	850	0.70	0.65	0.48	0.88	
		Stage 2~3	1783	1659	1223	2237	2	3	850	1.05	0.65	0.72	0.88	
	Snidercroft Road @ Keele Street	Stage 2~3	1091	2432	1095	2035	2	3	850	0.64	0.95	0.64	0.80	
ATR	North of 407 ETR / South of 407 ETR	Stage 2~3	1643	1640	1222	1927	2	3	850	0.97	0.64	0.72	0.76	

1. TMC = Turning Movement Counts; ATR = Automatic Traffic Recorder;

= Reversible Lane Strategy

Red = V/C Ratio > 1.0

Exhibit 4-6: Impact of Construction of 407 Crossings on Keele Street Capacity (Weekday Pm Peak Hour)

Type Of Count ⁽¹⁾	Location(s)	Construction Sequence	Traffic Volumes				Number of Lanes		Nominal Capacity (pcu/hr)	Volume to Capacity Ratio			
			North of 407 ETR		South of 407 ETR					North of 407 ETR		South of 407 ETR	
			Northbound	Southbound	Northbound	Southbound	Northbound	Southbound		Northbound	Southbound	Northbound	Southbound
BACKGROUND CONDITION (2023) – WITHOUT CONSTRUCTION													
TMC	407 EB off-ramp @ Keele Street	Stage 1	2409	1228	1223	1367	3	3	950	0.85	0.43	0.43	0.48
		Stage 2~3	2409	1228	1223	1367	3	3	950	0.85	0.43	0.43	0.48
	Snidercroft Road @ Keele Street	Stage 2~3	1641	979	1326	1089	3	3	950	0.58	0.34	0.47	0.38
ATR	North of 407 ETR / South of 407 ETR	Stage 2~3	1895	1354	1969	1572	3	3	950	0.67	0.48	0.69	0.55
BACKGROUND CONDITION (2023) – WITH CONSTRUCTION (WITHOUT REVERSIBLE LANE)													
TMC	407 EB off-ramp @ Keele Street	Stage 1	2409	1228	1223	1367	3	3	850	0.94	0.48	0.48	0.54
		Stage 2~3	2409	1228	1223	1367	2	3	850	0.94	0.48	0.72	0.54
	Snidercroft Road @ Keele Street	Stage 2~3	1641	979	1326	1089	2	3	850	0.97	0.38	0.78	0.43
ATR	North of 407 ETR / South of 407 ETR	Stage 2~3	1895	1354	1969	1572	2	3	850	1.11	0.53	1.16	0.62
BACKGROUND CONDITION (2023) – WITH CONSTRUCTION (WITH REVERSIBLE LANE)													
TMC	407 EB off-ramp @ Keele Street	Stage 1	2409	1228	1223	1367	3	3	850	0.94	0.48	0.48	0.54
		Stage 2~3	2409	1228	1223	1367	3	2	850	0.94	0.72	0.48	0.80
	Snidercroft Road @ Keele Street	Stage 2~3	1641	979	1326	1089	2	3	850	0.97	0.38	0.78	0.43
ATR	North of 407 ETR / South of 407 ETR	Stage 2~3	1895	1354	1969	1572	3	2	850	0.74	0.80	0.77	0.92

1. TMC = Turning Movement Counts; ATR = Automatic Traffic Recorder;

= Reversible Lane Strategy

Red = V/C Ratio > 1.0

5. DUFFERIN STREET

The 407 Transitway alignment will cross Dufferin Street just north of the Highway 407 corridor and south of Highway 7. The location of the Dufferin Street construction zone is shown in **Exhibit 5-1**. An aerial view of the construction zone and a current street view of Dufferin Street near the construction zone are shown in **Exhibit 5-2** and **Exhibit 5-3**, respectively.

Exhibit 5-1: Location of Dufferin Street Construction Zone



Exhibit 5-2: Aerial View of Dufferin Street Construction Zone

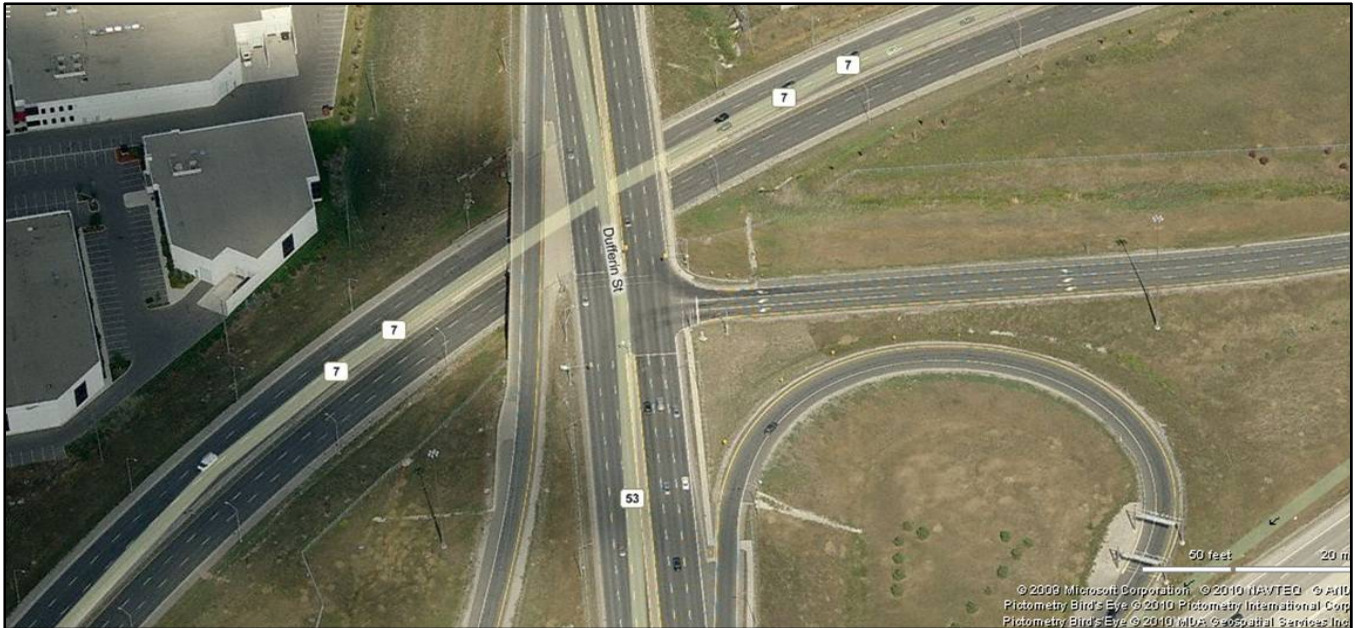


Exhibit 5-3: Street View of Dufferin Street Looking North



5.1 Construction Staging

Construction of the Highway 407 Transitway at Dufferin Street is projected to occur in 3 stages:

- **Stage 1** – The existing 407 northwest ramp (southbound Dufferin Street access to 407 westbound) will be closed for construction access with a temporary ramp detour built further south. Dufferin Street will have three northbound through lanes; and three southbound through lanes.
- **Stage 2** – The 407 northwest ramp (southbound Dufferin Street access to 407 westbound) will reopen and the temporary ramp detour will be dismantled. The west cross section of Dufferin Street will be closed for construction access. Dufferin Street will have two northbound through lanes; two southbound through lanes; and one reversible northbound / southbound centre lane.
- **Stage 3** – The west cross section of Dufferin Street will reopen and the east cross section of Dufferin Street will be closed for construction access. Dufferin Street will have two northbound through lanes; two southbound through lanes; and one reversible northbound / southbound centre lane. The alignment of the 407 westbound off-ramp (407 to Dufferin Street) will shift slightly to the southwest, but the lane configuration will remain the same (two left-turn lanes and one right-turn lane).

The 60% preliminary design construction stage drawings for Dufferin Street are in **Appendix C**. The northbound and southbound lane configurations for the pre-construction condition and by construction stage are shown in **Exhibit 5-4**.

Exhibit 5-4: Dufferin Street Lane Configuration By Construction Stage

Construction Stage	Lane Configuration									
	Southbound					Northbound				
	Lane 5	Lane 4	Lane 3	Lane 2	Lane 1	Lane 1	Lane 2	Lane 3	Lane 4	Lane 5
Pre-Construction Condition			↓	↓	↓	↑	↑	↑		
Stage 1			↓	↓	↓	↑	↑	↑		
Stage 2		↓↑ Construction Site Access	↓	↓		↕ Reversible Lane	↑	↑		
Stage 3			↓	↓		↕ Reversible Lane	↑	↑	↓↑ Construction Site Access	

5.2 Traffic Operations Analysis

The results of the Dufferin Street traffic operations analysis are summarized in **Exhibit 5-5** and **Exhibit 5-6** for the weekday am and weekday pm peak hours, respectively.

In the pm peak hour, northbound traffic operations on Dufferin Street near the Highway 407 westbound off-ramp terminal are projected to operate at over-capacity conditions. During the temporary construction period, one additional northbound lane will be required in the pm peak hour along this section of Dufferin Street (approximately 1,500 metres) to increase northbound roadway capacity to handle traffic. Temporarily reversing one southbound lane to a northbound lane is projected to eliminate over-capacity conditions on northbound traffic operations but is projected to cause southbound traffic operations on Dufferin Street to operate at capacity conditions. No additional measures will be required in the am peak period.

Exhibit 5-5: Impact of Construction of 407 Crossings on Dufferin Street Capacity (Weekday Am Peak Hour)

Type Of Count ⁽¹⁾	Location(s)	Construction Sequence	Traffic Volumes				Number of Lanes		Nominal Capacity (pcu/hr)	Volume to Capacity Ratio				
			North of 407 ETR		South of 407 ETR					North of 407 ETR		South of 407 ETR		
			Northbound	Southbound	Northbound	Southbound	Northbound	Southbound		Northbound	Southbound			
BACKGROUND CONDITION (2023) – WITHOUT CONSTRUCTION														
TMC	Hwy. 407 WB Off-Ramp @ Dufferin Street	Stage 1	1,552	1,986	1,247	2,130	3	3	950	0.54	0.70	0.44	0.75	
		Stage 2	1,552	1,986	1,247	2,130	3	3	950	0.54	0.70	0.44	0.75	
		Stage 3	1,552	1,986	1,247	2,130	3	3	950	0.54	0.70	0.44	0.75	
	Langstaff Road @ Dufferin Street	Stage 1~3	1,233	2,400	1,574	2,638	3	3	950	0.43	0.84	0.55	0.93	
ATR	North of 407 ETR / South of 407 ETR	Stage 1~3	1,338	2,258	1,145	1,343	3	3	950	0.47	0.79	0.40	0.47	
BACKGROUND CONDITION (2023) – WITH CONSTRUCTION														
TMC	Hwy. 407 WB Off-Ramp @ Dufferin Street	Stage 1	1,552	1,986	1,247	2,130	3	3	850	0.61	0.96	0.49	1.01	
		Stage 2	1,552	1,986	1,247	2,130	2	3	850	0.91	0.78	0.73	0.84	
		Stage 3	1,552	1,986	1,247	2,130	2	3	850	0.91	0.78	0.73	0.84	
	Langstaff Road @ Dufferin Street	Stage 1~3	1,233	2,400	1,574	2,638	3	3	850	0.48	0.94	0.62	1.03	
ATR	North of 407 ETR / South of 407 ETR	Stage 1~3	1,338	2,258	1,145	1,343	2	3	850	0.79	0.89	0.67	0.53	

1. TMC = Turning Movement Counts; ATR = Automatic Traffic Recorder;

= Reversible Lane Strategy

Red = V/C Ratio > 1.0

Exhibit 5-6: Impact of Construction of 407 Crossings on Dufferin Street Capacity (Weekday Pm Peak Hour)

Type Of Count ⁽¹⁾	Location(s)	Construction Sequence	Traffic Volumes				Number of Lanes		Nominal Capacity (pcu/hr)	Volume to Capacity Ratio			
			North of 407 ETR		South of 407 ETR					North of 407 ETR		South of 407 ETR	
			Northbound	Southbound	Northbound	Southbound	Northbound	Southbound		Northbound	Southbound	Northbound	Southbound
BACKGROUND CONDITION (2023) – WITHOUT CONSTRUCTION													
TMC	Hwy. 407 WB Off-Ramp @ Dufferin Street	Stage 1	2,570	2,061	2,256	2,187	3	3	950	0.90	0.57	0.79	0.61
		Stage 2	2,570	1,622	2,256	1,748	3	3	950	0.90	0.57	0.79	0.61
		Stage 3	2,570	1,622	2,256	1,748	3	3	950	0.90	0.57	0.79	0.61
	Langstaff Road @ Dufferin Street	Stage 1~3	1,233	2,400	1,574	2,638	3	3	950	0.43	0.84	0.55	0.93
ATR	North of 407 ETR / South of 407 ETR	Stage 1~3	2,039	1,986	1,723	1,305	3	3	950	0.72	0.70	0.60	0.46
BACKGROUND CONDITION (2023) – WITH CONSTRUCTION (WITHOUT REVERSIBLE LANE)													
TMC	Hwy. 407 WB Off-Ramp @ Dufferin Street	Stage 1	2,570	2,061	2,256	2,187	3	3	850	1.01	0.81	0.88	0.86
		Stage 2	2,570	1,622	2,256	1,748	2	3	850	1.51	0.64	1.33	0.69
		Stage 3	2,570	1,622	2,256	1,748	2	3	850	1.51	0.64	1.33	0.69
	Langstaff Road @ Dufferin Street	Stage 1~3	1,233	2,400	1,574	2,638	3	3	850	0.48	0.94	0.62	1.03
ATR	North of 407 ETR / South of 407 ETR	Stage 1~3	2,039	1,986	1,723	1,305	2	3	850	1.20	0.78	1.01	0.51

Exhibit 5-6: Impact of Construction of 407 Crossings on Dufferin Street Capacity (Weekday Pm Peak Hour)

Type Of Count ⁽¹⁾	Location(s)	Construction Sequence	Traffic Volumes				Number of Lanes		Nominal Capacity (pcu/hr)	Volume to Capacity Ratio			
			North of 407 ETR		South of 407 ETR					North of 407 ETR		South of 407 ETR	
			Northbound	Southbound	Northbound	Southbound	Northbound	Southbound		Northbound	Southbound		
BACKGROUND CONDITION (2023) – WITH CONSTRUCTION (WITH REVERSIBLE LANE)													
TMC	Hwy. 407 WB Off-Ramp @ Dufferin Street	Stage 1	2,570	2,061	2,256	2,187	3	3	850	1.01	0.81	0.88	0.86
		Stage 2	2,570	1,622	2,256	1,748	3	2	850	1.01	0.95	0.88	1.03
		Stage 3	2,570	1,622	2,256	1,748	3	2	850	1.01	0.95	0.88	1.03
	Langstaff Road @ Dufferin Street	Stage 1~3	1,233	2,400	1,574	2,638	3	3	850	0.48	0.94	0.62	1.03
ATR	North of 407 ETR / South of 407 ETR	Stage 1~3	2,039	1,986	1,723	1,305	3	2	850	0.80	1.17	0.68	0.77

1. TMC = Turning Movement Counts; ATR = Automatic Traffic Recorder;

= Reversible Lane Strategy

Red = V/C Ratio > 1.0

6. BATHURST STREET

The 407 Transitway alignment will cross Bathurst Street just north of the Highway 407 corridor and south of Highway 7. The location of the Bathurst Street construction zone is shown in **Exhibit 6-1**. An aerial view of the construction zone and a current street view of Bathurst Street near the construction zone are shown in **Exhibit 6-2** and **Exhibit 6-3**, respectively.

Exhibit 6-1: Location of Bathurst Street Construction Zone

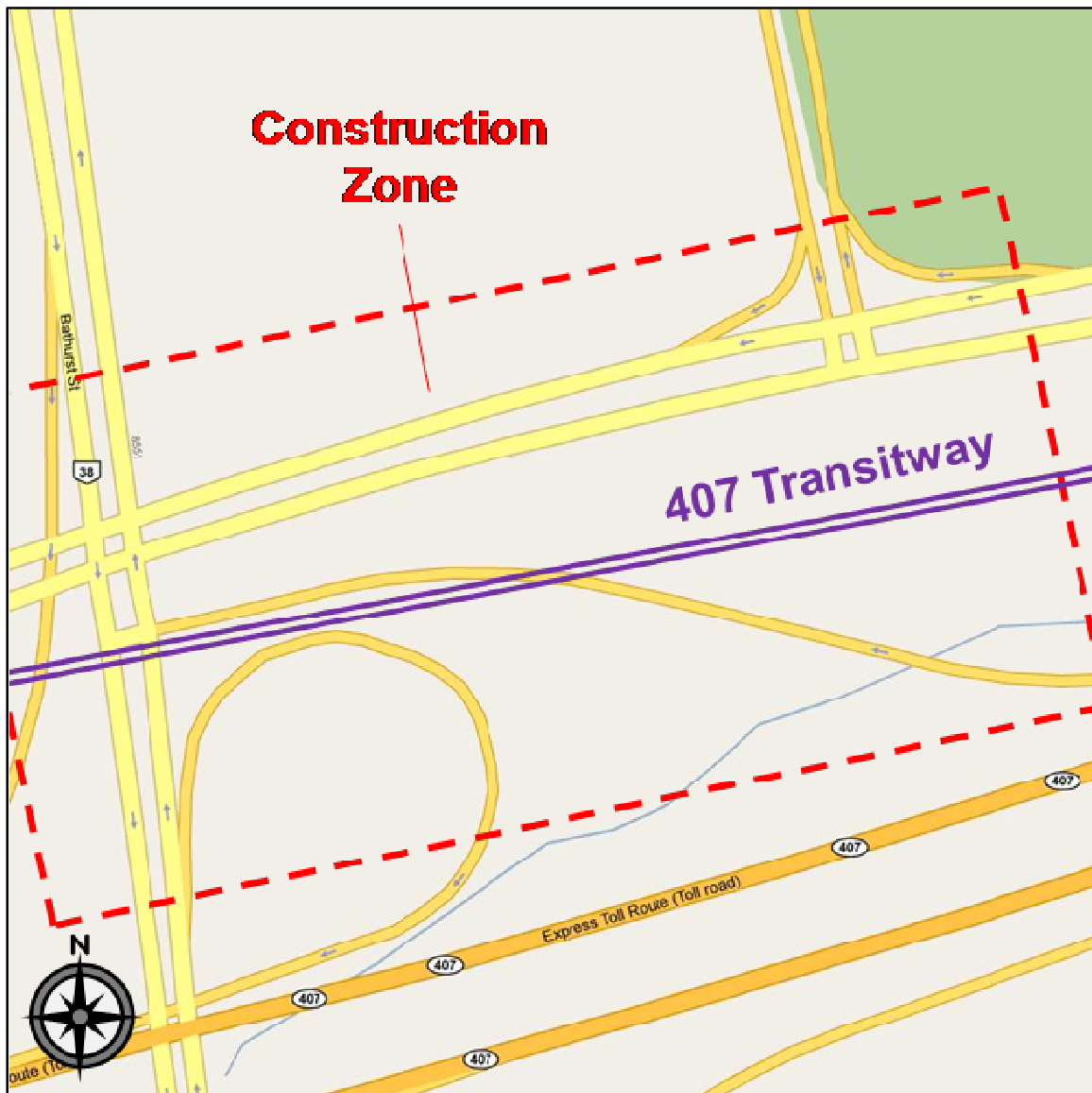


Exhibit 6-2: Aerial View of Bathurst Street Construction Zone

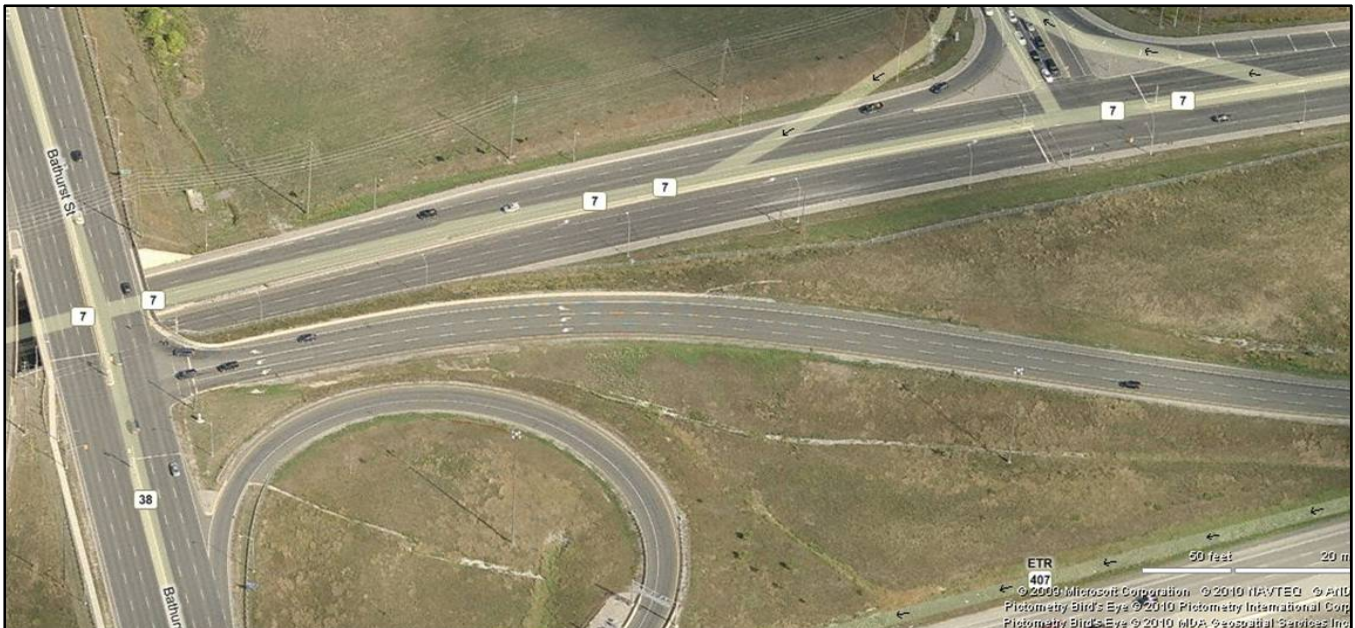


Exhibit 6-3: Street View of Bathurst Street Looking South



6.1 Construction Staging

Construction of the Highway 407 Transitway at Bathurst Street is projected to occur in 5 stages:

- **Stage 1** – The existing 407 westbound off- ramp (from 407 to Bathurst Street) will be realigned with a temporary ramp detour to Highway 7. The Off-Ramp will have one left-turn lane, one through lane and one shared through/right-turn lane. Highway 7 will have three eastbound through lanes and one left-turn lane; and three westbound through lanes and one right-turn lane. The existing southwest ramp (northbound Bathurst Street access to 407 westbound) will be realigned south and will have one lane.
- **Stage 1A** – The 407 westbound off- ramp (from 407 to Bathurst Street) remains realigned with a temporary ramp detour to Highway 7. The east cross section of Bathurst Street will be closed for construction access. Bathurst Street will have one northbound through lane and one northbound shared through/right-turn lane; two southbound through lanes; and one reversible northbound / southbound centre lane.
- **Stage 2** – The 407 westbound off- ramp (from 407 to Bathurst Street) remains realigned with a temporary ramp detour to Highway 7. The east cross section of Bathurst Street will reopen and the centre cross section of Bathurst Street will be closed for construction access. Bathurst Street will have two northbound through lanes and one northbound shared through/right-turn lane; and three southbound through lanes.
- **Stage 3** – The 407 westbound off- ramp (from 407 to Bathurst Street) remains realigned with a temporary ramp detour to Highway 7. The centre cross section of Bathurst Street will reopen and the west cross section of Bathurst Street will be closed for construction access. Bathurst Street will have one northbound through lanes and one northbound shared through/right-turn lane; two southbound through lanes; and one reversible northbound / southbound centre lane.
- **Stage 4** – The 407 westbound off- ramp (from 407 to Bathurst Street) remains realigned with a temporary ramp detour to Highway 7. The centre cross section of Bathurst Street will reopen. The northwest ramp (southbound Bathurst Street access to 407 westbound) will be closed for construction access with a temporary ramp detour built further south. Bathurst Street will have two northbound through lanes and one northbound shared through/right-turn lane; and three southbound through lanes.
- **Stage 5** – The 407 westbound off- ramp (from 407 to Bathurst Street) will reopen and the 407 northwest ramp (southbound Bathurst Street access to 407 westbound) will reopen and the temporary ramp detour will be dismantled. Highway 7 will have three eastbound through lanes and one left-turn lane; and three westbound through lanes and one right-turn lane. There will be a connector road between the 407 Transitway and Highway 7 / Bathurst Street connecting road.

The 60% preliminary design construction stage drawings for Bathurst Street are in **Appendix D**. The northbound and southbound lane configurations for the pre-construction condition and by construction stage are shown in **Exhibit 6-4**.

Exhibit 6-4: Bathurst Street Lane Configuration By Construction Stage

Construction Stage	Lane Configuration									
	Southbound / Westbound					Northbound / Eastbound				
	Lane 5	Lane 4	Lane 3	Lane 2	Lane 1	Lane 1	Lane 2	Lane 3	Lane 4	Lane 5
Bathurst Street (North-South)										
Pre-Construction Condition			↓	↓	↓	↑	↑	↑→		
Stage 1 ⁽¹⁾			↓	↓	↓	↑	↑	↑		
Stage 1A			↓	↓		↕ Reversible Lane	↑	↑→	↕↔ Construction Site Access	
Stage 2		↓	↓	↓		↕↔ Construction Site Access	↑	↑	↑→	
Stage 3	↕↔ Construction Site Access		↓	↓		↕ Reversible Lane	↑	↑→		
Stage 4			↓	↓	↓	↑	↑	↑→		
Stage 5			↓	↓	↓	↑	↑	↑		
Highway 7 (East-West)										
Pre-Construction Condition	↔↔	↓	↓	↓		↔↔	↑	↑	↑	
Stage 1 ⁽¹⁾	↔↔	↓	↓	↓		↔↔	↔↔	↑	↑	↑
Stage 5	↔↔	↓	↓	↓		↔↔	↔↔	↑	↑	↑

1. Highway 407 westbound off-ramp temporarily diverted to Highway 7. There is no impact to the lane configuration on Bathurst Street.

6.1 Traffic Operations Analysis

The results of the Bathurst Street traffic operations analysis are summarized in **Exhibit 6-5** and **Exhibit 6-6** for the weekday am and weekday pm peak hours, respectively.

In the pm peak hour, northbound traffic operations on Bathurst Street between the Highway 407 Off-Ramp terminals are projected to operate at over-capacity conditions. During the temporary construction period, one additional northbound lane will be required in the pm peak hour along this section of Bathurst Street (approximately 500 metres) to increase northbound roadway capacity to handle traffic. Temporarily reversing one southbound lane to a northbound lane is projected to reduce over-capacity conditions on northbound traffic operations but is projected to increase over-capacity conditions on southbound traffic operations. In the am peak hour, traffic operations are also projected to experience V/C ratios between 1.00 to 1.15 during the construction period (year 2023).

During the temporary construction period, the Highway 407 westbound off-ramp will be diverted away from Bathurst Street and north to the intersection of Highway 7 and the Bathurst Street Connecting Road to form a temporary northbound approach. In the am and pm peak hours, the additional of the temporary northbound approach and eastbound traffic operations require the addition of a second eastbound left-turn lane. With dual left-turn lanes in the eastbound approach, the northbound approach (Highway 407 westbound off-ramp) will operate below capacity.

Exhibit 6-5: Impact of Construction of 407 Crossings on Bathurst Street Capacity (Weekday Am Peak Hour)

Type Of Count ⁽¹⁾	Location(s)	Construction Sequence	Traffic Volumes				Number of Lanes		Nominal Capacity (pcu/hr)	Volume to Capacity Ratio			
			North of 407 ETR		South of 407 ETR					North of 407 ETR		South of 407 ETR	
			Northbound / Eastbound	Southbound / Westbound	Northbound / Eastbound	Southbound / Westbound	Northbound / Eastbound	Southbound / Westbound		Northbound / Eastbound	Southbound / Westbound		
BACKGROUND CONDITION (2023) – WITHOUT CONSTRUCTION													
TMC	Bathurst Connecting Road @ Highway 7	Stage 1- 5	3,116	1,278	-	-	3	3	950	0.95	0.67	-	-
	Hwy. 407 EB Off-Ramp @ Bathurst Street	Stage 2~5	1,827	2,623	1,720	2,769	3	3	950	0.64	0.92	0.60	0.97
	Hwy. 407 WB Off-Ramp @ Bathurst Street	Stage 2~5	1,806	2,161	1,806	2,285	3	3	950	0.63	0.76	0.63	0.80
ATR	North of 407 ETR	Stage 2~5	2,068	2,730	2,539	2,878	3	3	950	0.73	0.96	0.89	1.01
BACKGROUND CONDITION (2023) – WITH CONSTRUCTION													
TMC	Bathurst Connecting Road @ Highway 7	Stage 1-5	3,116	1,278	-	-	3	3	850	1.08	0.70	-	-
	Hwy. 407 EB Off-Ramp @ Bathurst Street	Stage 2~5	1,827	2,623	1,720	2,769	2	3	850	1.07	1.03	1.01	1.09
	Hwy. 407 WB Off-Ramp @ Bathurst Street	Stage 2~5	1,806	2,161	1,806	2,285	2	3	850	1.06	0.85	1.06	0.90
ATR	North of 407 ETR	Stage 2~5	2,068	2,730	2,539	2,878	2	3	850	1.22	1.07	1.49	1.13

1. TMC = Turning Movement Counts; ATR = Automatic Traffic Recorder;

= Reversible Lane Strategy

Red = V/C Ratio > 1.0

Exhibit 6-6: Impact of Construction of 407 Crossings on Bathurst Street Capacity (Weekday Pm Peak Hour)

Type Of Count ⁽¹⁾	Location(s)	Construction Sequence	Traffic Volumes				Number of Lanes		Nominal Capacity (pcu/hr)	Volume to Capacity Ratio			
			North of 407 ETR		South of 407 ETR					North of 407 ETR		South of 407 ETR	
			Northbound / Eastbound	Southbound / Westbound	Northbound / Eastbound	Southbound / Westbound	Northbound / Eastbound	Southbound / Westbound		Northbound / Eastbound	Southbound / Westbound	Northbound / Eastbound	Southbound / Westbound
BACKGROUND CONDITION (2023) – WITHOUT CONSTRUCTION													
TMC	Bathurst Connecting Road @ Highway 7	Stage 1-5	1,604	2,528	-	-	3	3	950	0.55	0.97	-	-
	Hwy. 407 EB Off-Ramp @ Bathurst Street	Stage 2~5	2,524	2,061	2,041	2,408	3	3	950	0.89	0.72	0.72	0.84
	Hwy. 407 WB Off-Ramp @ Bathurst Street	Stage 2~5	3,262	1,367	3,262	1,523	3	3	950	1.14	0.48	1.14	0.53
ATR	North of 407 ETR	Stage 2~5	2,614	1,761	2,407	2,424	3	3	950	0.92	0.62	0.84	0.85
BACKGROUND CONDITION (2023) – WITH CONSTRUCTION (WITHOUT REVERSIBLE LANE)													
TMC	Bathurst Connecting Road @ Highway 7	Stage 1-5	1,604	2,528	-	-	3	3	850	0.62	1.03	-	-
	Hwy. 407 EB Off-Ramp @ Bathurst Street	Stage 2~5	2,524	2,061	2,041	2,408	2	3	850	1.48	0.81	1.20	0.94
	Hwy. 407 WB Off-Ramp @ Bathurst Street	Stage 2~5	3,262	1,367	3,262	1,523	2	3	850	1.92	0.54	1.92	0.60
ATR	North of 407 ETR	Stage 2~5	2,614	1,761	2,407	2,424	2	3	850	1.54	0.69	1.42	0.95

Exhibit 6-6: Impact of Construction of 407 Crossings on Bathurst Street Capacity (Weekday Pm Peak Hour)

Type Of Count ⁽¹⁾	Location(s)	Construction Sequence	Traffic Volumes				Number of Lanes		Nominal Capacity (pcu/hr)	Volume to Capacity Ratio			
			North of 407 ETR		South of 407 ETR					North of 407 ETR		South of 407 ETR	
			Northbound / Eastbound	Southbound / Westbound	Northbound / Eastbound	Southbound / Westbound	Northbound / Eastbound	Southbound / Westbound		Northbound / Eastbound	Southbound / Westbound	Northbound / Eastbound	Southbound / Westbound
BACKGROUND CONDITION (2023) – WITH CONSTRUCTION (WITH REVERSIBLE LANE)													
TMC	Hwy. 407 EB Off-Ramp @ Bathurst Street	Stage 2~5	2,524	2,061	2,041	2,408	3	2	850	0.99	1.21	0.80	1.42
	Hwy. 407 WB Off-Ramp @ Bathurst Street	Stage 2~5	3,262	1,367	3,262	1,523	3	2	850	1.28	0.80	1.28	0.90
ATR	North of 407 ETR	Stage 2~5	2,614	1,761	2,407	2,424	3	2	850	1.03	1.04	0.94	1.43

1. TMC = Turning Movement Counts; ATR = Automatic Traffic Recorder;

= Reversible Lane Strategy

Red = V/C Ratio > 1.0

7. BAYVIEW AVENUE

The 407 Transitway alignment will cross Bayview Avenue just north of the Highway 407 corridor and south of Highway 7. The location of the Bayview Avenue construction zone is shown in **Exhibit 7-1**. An aerial view of the construction zone and a current street view of Bayview Avenue near the construction zone are shown in **Exhibit 7-2** and **Exhibit 7-3**, respectively.

Exhibit 7-1: Location of Bayview Avenue Construction Zone

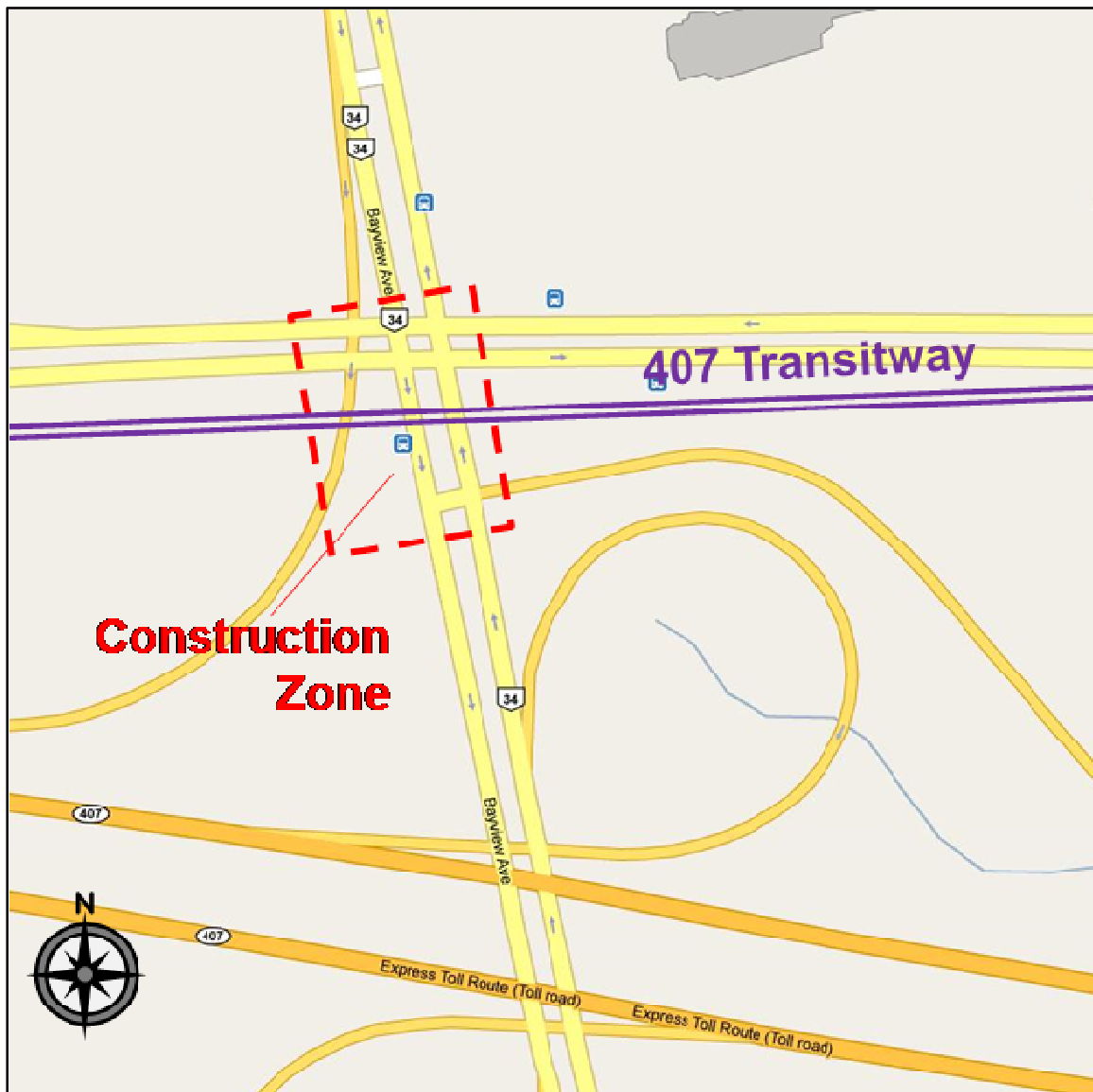


Exhibit 7-2: Aerial View of Bayview Avenue Construction Zone



Exhibit 7-3: Street View of Bayview Avenue Looking North



7.1 Construction Staging

Construction of the Highway 407 Transitway at Bayview Avenue is projected to occur in 5 stages:

- **Stage 1** – The existing 407 northwest ramp (southbound Bayview Avenue access to 407 westbound) will be closed for construction access with a temporary ramp detour built further south. Bayview Avenue will have three northbound through lanes; and two southbound through lanes and one shared southbound through/right-turn lane (onto temporary ramp detour).
- **Stage 1A** – The existing 407 westbound off- ramp (from 407 to Bayview Avenue) will be realigned to the south. The Off-Ramp will have one left-turn lane and one right-turn lane. Bayview Avenue will have three northbound through lanes; and three southbound through lanes.
- **Stage 2** – The existing 407 westbound off- ramp (from 407 to Bayview Avenue) has been realigned to the south. The Off-Ramp will have two left-turn lanes and one right-turn lane. Bayview Avenue will have three northbound through lanes; and three southbound through lanes.
- **Stage 3** – The west cross section of Bayview Avenue will be closed for construction access. Bayview Avenue will have two northbound through lanes; two southbound through lanes; and one reversible northbound / southbound centre lane.
- **Stage 4** – The west cross section of Bayview Avenue will reopen and the centre cross section of Bayview Avenue will be closed for construction access. Bayview Avenue will have three northbound through lanes; and three southbound through lanes.
- **Stage 5** – The centre cross section of Bayview Avenue will reopen and the east cross section of Bayview Avenue will be closed for construction access. Bayview Avenue will have two northbound through lanes; two southbound through lanes; and one reversible northbound / southbound centre lane.

The 60% preliminary design construction stage drawings for Bayview Avenue are in **Appendix E**. The northbound and southbound lane configurations for the pre-construction condition and by construction stage are shown in **Exhibit 7-4**.

7.2 Traffic Operations Analysis

The results of the Bayview Avenue traffic operations analysis are summarized in **Exhibit 7-5** and **Exhibit 7-6** for the weekday am and weekday pm peak hours, respectively.

In the am peak hour, northbound and southbound traffic operations on Bayview Avenue between the Highway 407 Off-Ramp terminals are projected to operate at capacity and at over-capacity conditions. In the pm peak hour, northbound traffic operations on Bayview Avenue between the Highway 407 Off-Ramp terminals are projected to operate at capacity and at over-capacity conditions. During the temporary construction period, one additional northbound lane will be required in the pm peak hour along this section of Bayview Avenue (approximately 350 metres) to increase northbound roadway capacity to handle traffic. Temporarily reversing one southbound lane to a northbound lane is projected to eliminate over-capacity conditions on northbound traffic operations but is projected to cause southbound traffic operations on Bayview Avenue to operate at above capacity conditions. No additional measures will be required in the am peak period.

Exhibit 7-4: Bayview Avenue Lane Configuration By Construction Stage

Construction Stage	Lane Configuration									
	Southbound					Northbound				
	Lane 5	Lane 4	Lane 3	Lane 2	Lane 1	Lane 1	Lane 2	Lane 3	Lane 4	Lane 5
Pre-Construction Condition			↓	↓	↓	↑	↑	↑		
Stage 1			↔↓	↓	↓	↑	↑	↑		
Stage 1A			↓	↓	↓	↑	↑	↑		
Stage 2			↓	↓	↓	↑	↑	↑		
Stage 3		↓↑ Construction Site Access	↓	↓		↑↓ Reversible Lane	↑	↑		
Stage 4		↓	↓	↓	↓↑ Construction Site Access		↑	↑	↑	
Stage 5			↓	↓		↑↓ Reversible Lane	↑	↑		

Exhibit 7-5: Impact of Construction of 407 Crossings on Bayview Avenue Capacity (Weekday Am Peak Hour)

Type Of Count ⁽¹⁾	Location(s)	Construction Sequence	Traffic Volumes				Number of Lanes		Nominal Capacity (pcu/hr)	Volume to Capacity Ratio			
			North of 407 ETR		South of 407 ETR					North of 407 ETR		South of 407 ETR	
			Northbound	Southbound	Northbound	Southbound	Northbound	Southbound		Northbound	Southbound		
BACKGROUND CONDITION (2023) – WITHOUT CONSTRUCTION													
TMC	Hwy. 407 EB Off-Ramp @ Bayview Avenue	Stage 1~5	2,894	2,696	2,724	2,896	3	3	950	1.02	0.95	0.96	1.02
	Hwy. 407 WB Off-Ramp @ Bayview Avenue	Stage 1, 2, 4	1,793	1,972	1,604	2,181	3	3	950	0.63	0.69	0.56	0.77
		Stage 3, 5	1,793	1,972	1,604	2,181	3	3	950	0.63	0.69	0.56	0.77
	Creswick Road @ Bayview Avenue	Stage 1~5	1,649	3,220	1,723	2,951	3	3	950	0.58	1.13	0.60	1.04
ATR	North of 407 ETR / South of 407 ETR	Stage 1, 2, 4	1,358	2,208	1,763	2,021	3	3	950	0.48	0.77	0.62	0.71
		Stage 3, 5	1,358	2,208	1,763	2,021	3	3	950	0.48	0.77	0.62	0.71
BACKGROUND CONDITION (2023) – WITH CONSTRUCTION													
TMC	Hwy. 407 EB Off-Ramp @ Bayview Avenue	Stage 1~5	2,894	2,696	2,724	2,896	3	3	850	1.14	1.06	1.07	1.14
	Hwy. 407 WB Off-Ramp @ Bayview Avenue	Stage 1, 2, 4	1,793	1,972	1,604	2,181	3	3	850	0.70	0.77	0.63	0.86
		Stage 3, 5	1,793	1,972	1,604	2,181	2	3	850	1.05	0.77	0.94	0.86
	Creswick Road @ Bayview Avenue	Stage 1~5	1,649	3,220	1,723	2,951	3	3	850	0.65	1.26	0.68	1.16
ATR	North of 407 ETR / South of 407 ETR	Stage 1, 2, 4	1,358	2,208	1,763	2,021	3	3	850	0.53	0.87	0.69	0.79
		Stage 3, 5	1,358	2,208	1,763	2,021	2	3	850	0.80	0.87	1.04	0.79

1. TMC = Turning Movement Counts; ATR = Automatic Traffic Recorder;

 = Reversible Lane Strategy

Red = V/C Ratio > 1.0

Exhibit 7-6: Impact of Construction of 407 Crossings on Bayview Avenue Capacity (Weekday Pm Peak Hour)

Type Of Count ⁽¹⁾	Location(s)	Construction Sequence	Traffic Volumes				Number of Lanes		Nominal Capacity (pcu/hr)	Volume to Capacity Ratio			
			North of 407 ETR		South of 407 ETR					North of 407 ETR		South of 407 ETR	
			Northbound	Southbound	Northbound	Southbound	Northbound	Southbound		Northbound	Southbound	Northbound	Southbound
BACKGROUND CONDITION (2023) – WITHOUT CONSTRUCTION													
TMC	Hwy. 407 EB Off-Ramp @ Bayview Avenue	Stage 1~5	3,258	2,653	2,885	3,142	3	3	950	1.14	0.93	1.01	1.10
	Hwy. 407 WB Off-Ramp @ Bayview Avenue	Stage 1, 2, 4	2,528	1,864	2,206	2,120	3	3	950	0.89	0.65	0.77	0.74
		Stage 3, 5	2,528	1,864	2,206	2,120	3	3	950	0.89	0.65	0.77	0.74
	Creswick Road @ Bayview Avenue	Stage 1~5	3,153	2,650	3,402	3,202	3	3	950	1.11	0.93	1.19	1.12
ATR	North of 407 ETR / South of 407 ETR	Stage 1, 2, 4	2,608	1,533	1,825	1,859	3	3	950	0.92	0.54	0.64	0.65
		Stage 3, 5	2,608	1,533	1,825	1,859	3	3	950	0.92	0.54	0.64	0.65
BACKGROUND CONDITION (2023) – WITH CONSTRUCTION (WITHOUT REVERSIBLE LANE)													
TMC	Hwy. 407 EB Off-Ramp @ Bayview Avenue	Stage 1~5	3,258	2,653	2,885	3,142	3	3	850	1.28	1.04	1.13	1.23
	Hwy. 407 WB Off-Ramp @ Bayview Avenue	Stage 1, 2, 4	2,528	1,864	2,206	2,120	3	3	850	0.99	0.73	0.87	0.83
		Stage 3, 5	2,528	1,864	2,206	2,120	2	3	850	1.49	0.73	1.30	0.83
	Creswick Road @ Bayview Avenue	Stage 1~5	3,153	2,650	3,402	3,202	3	3	850	1.24	1.04	1.33	1.26
ATR	North of 407 ETR / South of 407 ETR	Stage 1, 2, 4	2,608	1,533	1,825	1,859	3	3	850	1.02	0.60	0.72	0.73
		Stage 3, 5	2,608	1,533	1,825	1,859	2	3	850	1.53	0.60	1.07	0.73

Exhibit 7-6: Impact of Construction of 407 Crossings on Bayview Avenue Capacity (Weekday Pm Peak Hour)

Type Of Count ⁽¹⁾	Location(s)	Construction Sequence	Traffic Volumes				Number of Lanes		Nominal Capacity (pcu/hr)	Volume to Capacity Ratio			
			North of 407 ETR		South of 407 ETR					North of 407 ETR		South of 407 ETR	
			Northbound	Southbound	Northbound	Southbound	Northbound	Southbound		Northbound	Southbound		
BACKGROUND CONDITION (2023) – WITH CONSTRUCTION (WITH REVERSIBLE LANE)													
TMC	Hwy. 407 EB Off-Ramp @ Bayview Avenue	Stage 1~5	3,258	2,653	2,885	3,142	3	3	850	1.28	1.04	1.13	1.23
	Hwy. 407 WB Off-Ramp @ Bayview Avenue	Stage 1, 2, 4	2,528	1,864	2,206	2,120	3	3	850	0.99	0.73	0.87	0.83
		Stage 3, 5	2,528	1,864	2,206	2,120	3	2	850	0.99	1.10	0.87	1.25
	Creswick Road @ Bayview Avenue	Stage 1~5	3,153	2,650	3,402	3,202	3	3	850	1.24	1.04	1.33	1.26
ATR	North of 407 ETR / South of 407 ETR	Stage 1, 2, 4	2,608	1,533	1,825	1,859	3	3	850	1.02	0.60	0.72	0.73
		Stage 3, 5	2,608	1,533	1,825	1,859	3	2	850	1.02	0.90	0.72	1.09

1. TMC = Turning Movement Counts; ATR = Automatic Traffic Recorder;

= Reversible Lane Strategy

Red = V/C Ratio > 1.0

8. LESLIE STREET

The 407 Transitway alignment will cross Leslie Street just south of the Highway 407 corridor and north of Green Lane. The location of the Leslie Street construction zone is shown in **Exhibit 8-1**. An aerial view of the construction zone and a current street view of Leslie Street near the construction zone are shown in **Exhibit 8-2** and **Exhibit 8-3**, respectively.

Exhibit 8-1: Location of Leslie Street Construction Zone



Exhibit 8-2: Aerial View of Leslie Street Construction Zone

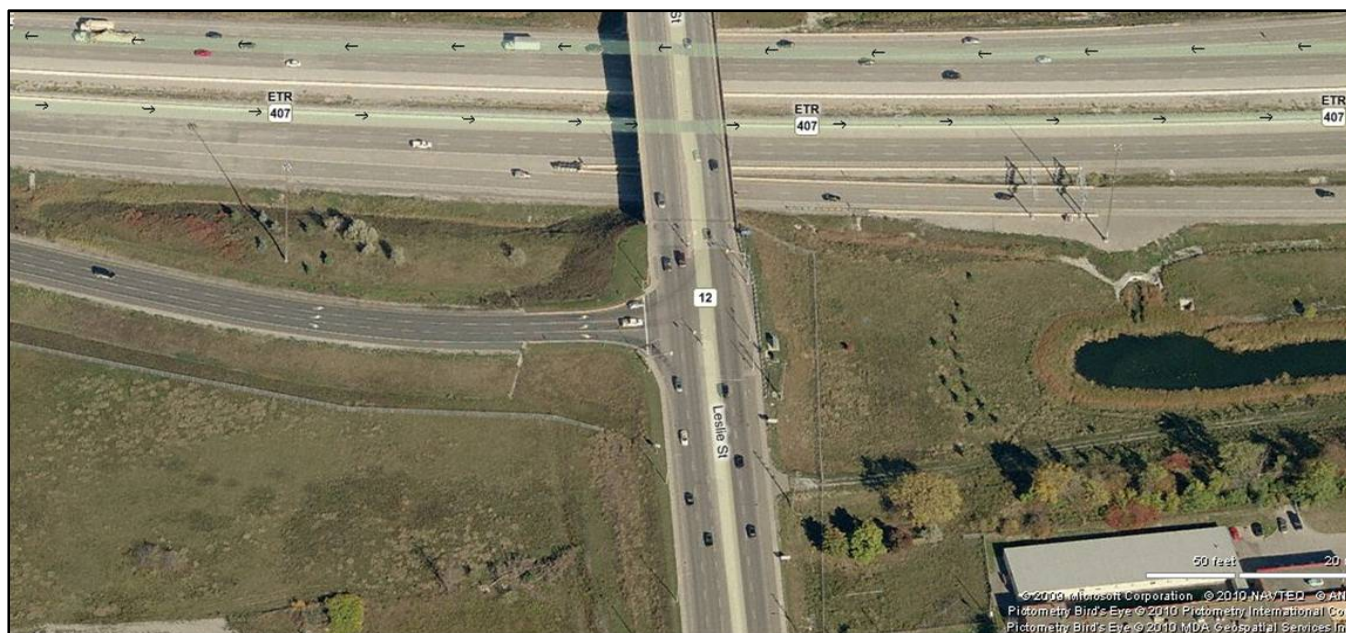


Exhibit 8-3: Street View of Leslie Street Looking North



8.1 Construction Staging

Construction of the Highway 407 Transitway at Leslie Street is projected to occur in 2 stages:

- **Stage 1** – The west cross section of Leslie Street will be closed for construction access. Leslie Street will have two northbound through lanes; and two southbound through lanes.
- **Stage 2** – The west cross section of Leslie Street will reopen and the east cross section of Leslie Street will be closed for construction access. Leslie Street will have two northbound through lanes; and two southbound through lanes.

The 60% preliminary design construction stage drawings for Jane Street are in **Appendix F**. The northbound and southbound lane configurations for the pre-construction condition and by construction stage are shown in **Exhibit 8-4**.

Exhibit 8-4: Leslie Street Lane Configuration By Construction Stage

Construction Stage	Lane Configuration									
	Southbound					Northbound				
	Lane 5	Lane 4	Lane 3	Lane 2	Lane 1	Lane 1	Lane 2	Lane 3	Lane 4	Lane 5
Pre-Construction Condition				↓	↓	↑	↑			
Stage 1			↓↑ Construction Site Access	↓	↓	↑	↑			
Stage 2				↓	↓	↑	↑		↓↑ Construction Site Access	

8.1 Traffic Operations Analysis

The results of the Leslie Street traffic operations analysis are summarized in **Exhibit 8-5** and **Exhibit 8-6** for the weekday am and weekday pm peak hours, respectively.

In the am peak hour, northbound and southbound traffic operations on Leslie Street between the Highway 407 Off-Ramp terminals are projected to operate at over-capacity and at capacity conditions, respectively. In the pm peak hour, northbound and southbound traffic operations on Leslie Street between the Highway 407 Off-Ramp terminals are projected to operate at over-capacity conditions.

Exhibit 8-5: Impact of Construction of 407 Crossings on Leslie Street Capacity (Weekday Am Peak Hour)

Type Of Count ⁽¹⁾	Location(s)	Construction Sequence	Traffic Volumes				Number of Lanes		Nominal Capacity (pcu/hr)	Volume to Capacity Ratio			
			North of 407 ETR		South of 407 ETR					North of 407 ETR		South of 407 ETR	
			Northbound	Southbound	Northbound	Southbound	Northbound	Southbound		Northbound	Southbound		
BACKGROUND CONDITION (2023) – WITHOUT CONSTRUCTION													
TMC	Hwy. 407 EB Off-Ramp @ Leslie Street	Stage 1~2	2,676	1,435	1,693	1,674	2	2	950	1.41	0.76	0.89	0.88
ATR	North of 407 ETR / South of 407 ETR	Stage 1~2	1,200	1,248	1,175	1,709	2	2	950	0.63	0.66	0.62	0.90
BACKGROUND CONDITION (2023) – WITH CONSTRUCTION													
TMC	Hwy. 407 EB Off-Ramp @ Leslie Street	Stage 1~2	2,676	1,435	1,693	1,674	2	2	850	1.57	0.84	1.00	0.98
ATR	North of 407 ETR / South of 407 ETR	Stage 1~2	1,200	1,248	1,175	1,709	2	2	850	0.71	0.73	0.69	1.01

1. TMC = Turning Movement Counts; ATR = Automatic Traffic Recorder;

 = Reversible Lane Strategy

Red = V/C Ratio > 1.0

Exhibit 8-6: Impact of Construction of 407 Crossings on Leslie Street Capacity (Weekday Pm Peak Hour)

Type Of Count ⁽¹⁾	Location(s)	Construction Sequence	Traffic Volumes				Number of Lanes		Nominal Capacity (pcu/hr)	Volume to Capacity Ratio			
			North of 407 ETR		South of 407 ETR					North of 407 ETR		South of 407 ETR	
			Northbound	Southbound	Northbound	Southbound	Northbound	Southbound		Northbound	Southbound	Northbound	Southbound
BACKGROUND CONDITION (2023) – WITHOUT CONSTRUCTION													
TMC	Hwy. 407 EB Off-Ramp @ Leslie Street	Stage 1~2	2,059	1,435	1,820	2,124	2	2	950	1.08	0.76	0.96	1.12
ATR	North of 407 ETR / South of 407 ETR	Stage 1~2	1,502	1,533	1,076	1,694	2	2	950	0.79	0.81	0.57	0.89
BACKGROUND CONDITION (2023) – WITH CONSTRUCTION (WITHOUT REVERSIBLE LANE)													
TMC	Hwy. 407 EB Off-Ramp @ Leslie Street	Stage 1~2	2,059	1,435	1,820	2,124	2	2	850	1.21	0.84	1.07	1.25
ATR	North of 407 ETR / South of 407 ETR	Stage 1~2	1,502	1,533	1,076	1,694	2	2	850	0.88	0.90	0.63	1.00

1. TMC = Turning Movement Counts; ATR = Automatic Traffic Recorder;

 = Reversible Lane Strategy

Red = V/C Ratio > 1.0

9. HIGHWAY 404 NORTHBOUND 407 ETR OFF-RAMPS

The 407 Transitway alignment will cross under the Highway 404 Northbound 407 ETR Off-Ramps at the south end of the ramps and north of the John Street bridge. The location of the Highway 404 Northbound 407 ETR Off-Ramps construction zone is shown in **Exhibit 9-1**. An aerial view of the construction zone and a current street view of the Highway 404 Northbound 407 ETR Off-Ramps near the construction zone are shown in **Exhibit 9-2** and **Exhibit 9-3**, respectively.

Exhibit 9-1: Location of Highway 404 Northbound 407 ETR Off-Ramps Construction Zone



Exhibit 9-2: Aerial View of Highway 404 Northbound 407 ETR Off-Ramps Construction Zone



Exhibit 9-3: Street View of Highway 404 Northbound 407 ETR Off-Ramps Looking North



9.1 Construction Staging

Construction of the Highway 407 Transitway at Highway 404 Northbound 407 ETR Off-Ramps is projected to occur in 2 stages:

- **Stage 1** – The west cross section of 404 northbound ramp to the westbound 407 ETR and the east cross section of 404 northbound ramp to the to the eastbound 407 ETR will be closed for construction access. The ramp to the westbound 407 ETR will have one through lane and the ramp to the eastbound 407 ETR will have one through lane.
- **Stage 2** – The west cross section of 404 northbound ramp to the westbound 407 ETR will reopen and the east cross section will be closed for construction access. The east cross section of 404 northbound ramp to the to the eastbound 407 ETR will reopen and the west **cross section** be closed for construction access. The ramp to the westbound 407 ETR will have one through lane and the ramp to the eastbound 407 ETR will have one through lane.

The 60% preliminary design construction stage drawings for Highway 404 Northbound 407 ETR Off-Ramps are in **Appendix G**. The northbound and southbound lane configurations for the pre-construction condition and by construction stage are shown in **Exhibit 9-4**.

Exhibit 9-4: Highway 404 Northbound 407 ETR Off-Ramps Lane Configuration By Construction Stage

Construction Stage	Lane Configuration									
	Northbound Ramp to 407 ETR Westbound					Northbound Ramp to 407 ETR Eastbound				
	Lane 5	Lane 4	Lane 3	Lane 2	Lane 1	Lane 1	Lane 2	Lane 3	Lane 4	Lane 5
Pre-Construction Condition				↑	↑	↑				
Stage 1				↓↑ Construction Site Access	↑	↑	↓↑ Construction Site Access			
Stage 2				↑	↓↑ Construction Site Access	↓↑ Construction Site Access	↑			

9.2 Traffic Operations Analysis

The results of the Highway 404 Northbound 407 ETR Off-Ramps traffic operations analysis are summarized in **Exhibit 9-5** and **Exhibit 9-6** for the weekday am and weekday pm peak hours, respectively.

In the pm peak hour, northbound traffic operations on the Highway 404 Northbound 407 ETR Off-Ramps are projected to operate at below capacity conditions. The number of the lanes on the ramp to the westbound 407 ETR will be reduced from two to one during both construction stages, which is projected to cause the V/C ratio in the pm peak period to increase from 0.42 to 0.96, which would still be below capacity.

Exhibit 9-5: Impact of Construction of 407 Crossings on Highway 404 Northbound 407 ETR Off-Ramps Capacity (Weekday Am Peak Hour)

Type Of Count ⁽¹⁾	Location(s)	Construction Sequence	Traffic Volumes				Number of Lanes		Nominal Capacity (pcu/hr)	Volume to Capacity Ratio				
			North of 407 ETR		South of 407 ETR					North of 407 ETR		South of 407 ETR		
			Northbound (407 ETR WB)	Northbound (407 ETR EB)	Northbound (407 ETR WB)	Northbound (407 ETR EB)	Northbound (407 ETR WB)	Northbound (407 ETR EB)		Northbound (407 ETR WB)	Northbound (407 ETR EB)	Northbound (407 ETR WB)	Northbound (407 ETR EB)	
BACKGROUND CONDITION (2023) – WITHOUT CONSTRUCTION														
ATR	407 ETR Off-Ramps @ Hwy. 404 NB	Stage 1~2	-	-	1,060	410	2	1	1,600	-	-	0.33	0.26	
BACKGROUND CONDITION (2023) – WITH CONSTRUCTION														
ATR	407 ETR Off-Ramps @ Hwy. 404 NB	Stage 1~2	-	-	1,060	410	1	1	1,400	-	-	0.76	0.29	

1. TMC = Turning Movement Counts; ATR = Automatic Traffic Recorder;

 = Reversible Lane Strategy*Red* = V/C Ratio > 1.0

Exhibit 9-6: Impact of Construction of 407 Crossings on Highway 404 Northbound 407 ETR Off-Ramps Capacity (Weekday Pm Peak Hour)

Type Of Count ⁽¹⁾	Location(s)	Construction Sequence	Traffic Volumes				Number of Lanes		Nominal Capacity (pcu/hr)	Volume to Capacity Ratio			
			North of 407 ETR		South of 407 ETR					North of 407 ETR		South of 407 ETR	
			Northbound (407 ETR WB)	Northbound (407 ETR EB)	Northbound (407 ETR WB)	Northbound (407 ETR EB)	Northbound (407 ETR WB)	Northbound (407 ETR EB)		Northbound (407 ETR WB)	Northbound (407 ETR EB)	Northbound (407 ETR WB)	Northbound (407 ETR EB)
BACKGROUND CONDITION (2023) – WITHOUT CONSTRUCTION													
ATR	407 ETR Off-Ramps @ Hwy. 404 NB	Stage 1~2	-	-	1,340	620	2	1	1,600	-	-	0.42	0.39
BACKGROUND CONDITION (2023) – WITH CONSTRUCTION													
ATR	407 ETR Off-Ramps @ Hwy. 404 NB	Stage 1~2	-	-	1,340	620	1	1	1,400	-	-	0.96	0.44

1. TMC = Turning Movement Counts; ATR = Automatic Traffic Recorder;

 = Reversible Lane Strategy*Red* = V/C Ratio > 1.0

10. RODICK ROAD

The 407 Transitway alignment will cross Rodick Road just south of the Highway 407 corridor and north of Miller Avenue. The location of the Rodick Road construction zone is shown in **Exhibit 10-1**. An aerial view of the construction zone and a current street view of Rodick Road near the construction zone are shown in **Exhibit 10-2** and **Exhibit 10-3**, respectively.

Exhibit 10-1: Location of Rodick Road Construction Zone

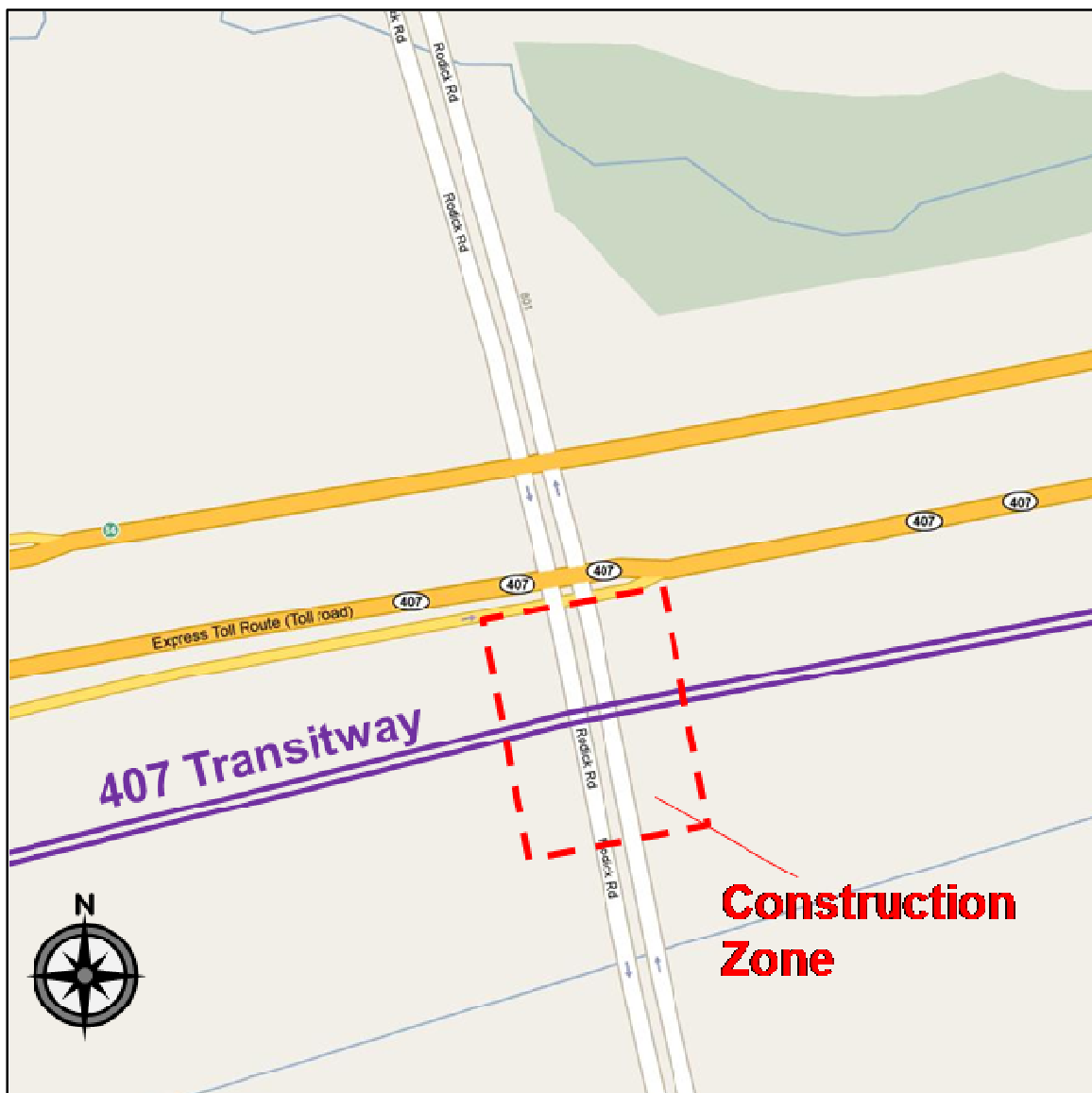


Exhibit 10-2: Aerial View of Rodick Road Construction Zone

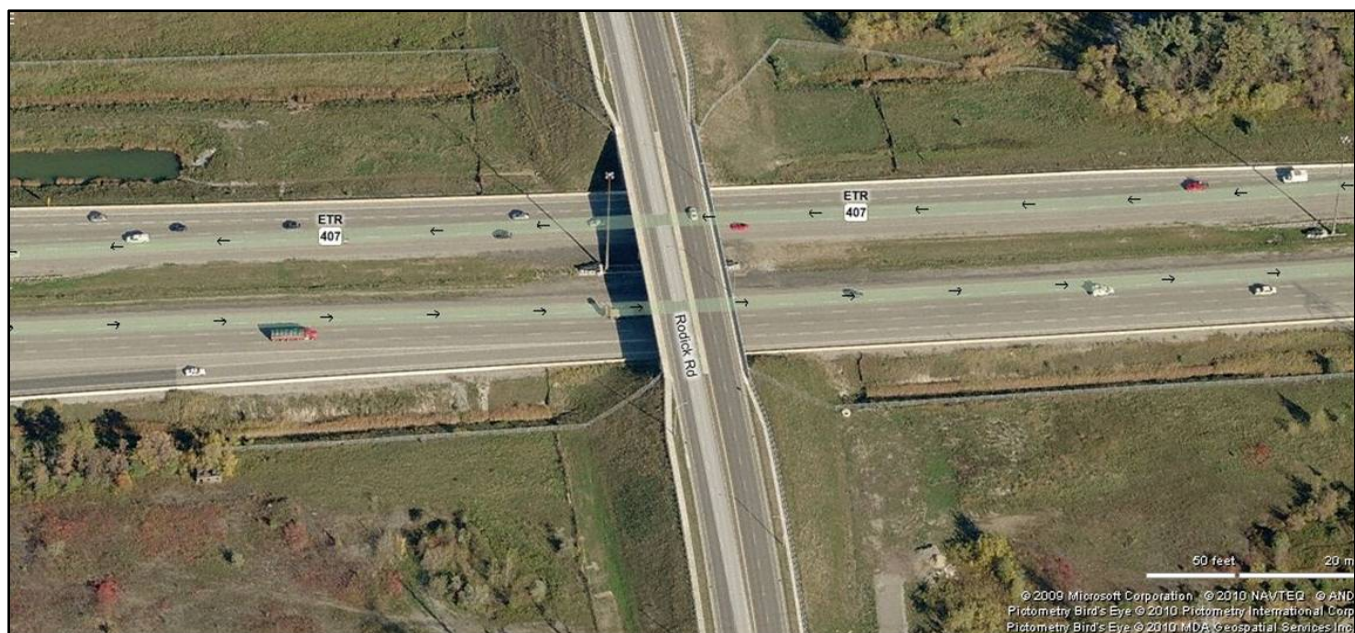


Exhibit 10-3: Street View of Rodick Road Looking North



10.1 Construction Staging

Construction of the Highway 407 Transitway at Rodick Road is projected to occur in 2 stages:

- **Stage 1** – The west cross section of Rodick Road will be closed for construction access. Rodick Road will have two northbound through lanes; and two southbound through lanes.
- **Stage 2** – The west cross section of Rodick Road will reopen and the east cross section of Rodick Road will be closed for construction access. Rodick Road will have two northbound through lanes; and two southbound through lanes.

The 60% preliminary design construction stage drawings for Rodick Road are in **Appendix H**. The northbound and southbound lane configurations for the pre-construction condition and by construction stage are shown in **Exhibit 10-4**.

Exhibit 10-4: Rodick Road Lane Configuration By Construction Stage

Construction Stage	Lane Configuration									
	Southbound					Northbound				
	Lane 5	Lane 4	Lane 3	Lane 2	Lane 1	Lane 1	Lane 2	Lane 3	Lane 4	Lane 5
Pre-Construction Condition				↓	↓	↑	↑			
Stage 1			↓↑ Construction Site Access	↓	↓	↑	↑			
Stage 2				↓	↓	↑	↑		↓↑ Construction Site Access	

10.2 Traffic Operations Analysis

The results of the Rodick Road traffic operations analysis are summarized in **Exhibit 10-5** and **Exhibit 10-6** for the weekday am and weekday pm peak hours, respectively.

During the am peak hour, northbound and southbound traffic operations on Rodick Road between Highway 7 and Miller Avenue are projected to operate at below capacity conditions. During the pm peak hour, northbound and southbound traffic operations on Rodick Road between Highway 7 and Miller Avenue are projected to operate at over-capacity conditions.

Exhibit 10-5: Impact of Construction of 407 Crossings on Rodick Road Capacity (Weekday Am Peak Hour)

Type Of Count ⁽¹⁾	Location(s)	Construction Sequence	Traffic Volumes				Number of Lanes		Nominal Capacity (pcu/hr)	Volume to Capacity Ratio				
			North of 407 ETR		South of 407 ETR					North of 407 ETR		South of 407 ETR		
			Northbound	Southbound	Northbound	Southbound	Northbound	Southbound		Northbound	Southbound			
BACKGROUND CONDITION (2023) – WITHOUT CONSTRUCTION														
ATR	Hwy. 407 @ Rodick Road Crossing	Stage 1~2	-	-	240	1,000	2	2	950	-	-	0.13	0.53	
BACKGROUND CONDITION (2023) – WITH CONSTRUCTION														
ATR	Hwy. 407 @ Rodick Road Crossing	Stage 1~2	-	-	240	1,000	2	2	850	-	-	0.14	0.59	


1. TMC = Turning Movement Counts; ATR = Automatic Traffic Recorder;

 = Reversible Lane Strategy*Red* = V/C Ratio > 1.0

Exhibit 10-6: Impact of Construction of 407 Crossings on Rodick Road Capacity (Weekday Pm Peak Hour)

Type Of Count ⁽¹⁾	Location(s)	Construction Sequence	Traffic Volumes				Number of Lanes		Nominal Capacity (pcu/hr)	Volume to Capacity Ratio				
			North of 407 ETR		South of 407 ETR					North of 407 ETR		South of 407 ETR		
			Northbound	Southbound	Northbound	Southbound	Northbound	Southbound		Northbound	Southbound	Northbound	Southbound	
BACKGROUND CONDITION (2023) – WITHOUT CONSTRUCTION														
ATR	Hwy. 407 @ Rodick Road Crossing	Stage 1~2	-	-	700	200	2	2	950	-	-	0.37	0.11	
BACKGROUND CONDITION (2023) – WITH CONSTRUCTION														
ATR	Hwy. 407 @ Rodick Road Crossing	Stage 1~2	-	-	700	200	2	2	850	-	-	0.41	0.12	

1. TMC = Turning Movement Counts; ATR = Automatic Traffic Recorder;

 = Reversible Lane Strategy*Red* = V/C Ratio > 1.0

11. WARDEN AVENUE

The 407 Transitway alignment will cross Warden Avenue just south of the Highway 407 corridor and north of 14th Avenue. The location of the Warden Avenue construction zone is shown in **Exhibit 11-1**. An aerial view of the construction zone and a current street view of Warden Avenue near the construction zone are shown in **Exhibit 11-2** and **Exhibit 11-3**, respectively.

Exhibit 11-1: Location of Warden Avenue Construction Zone

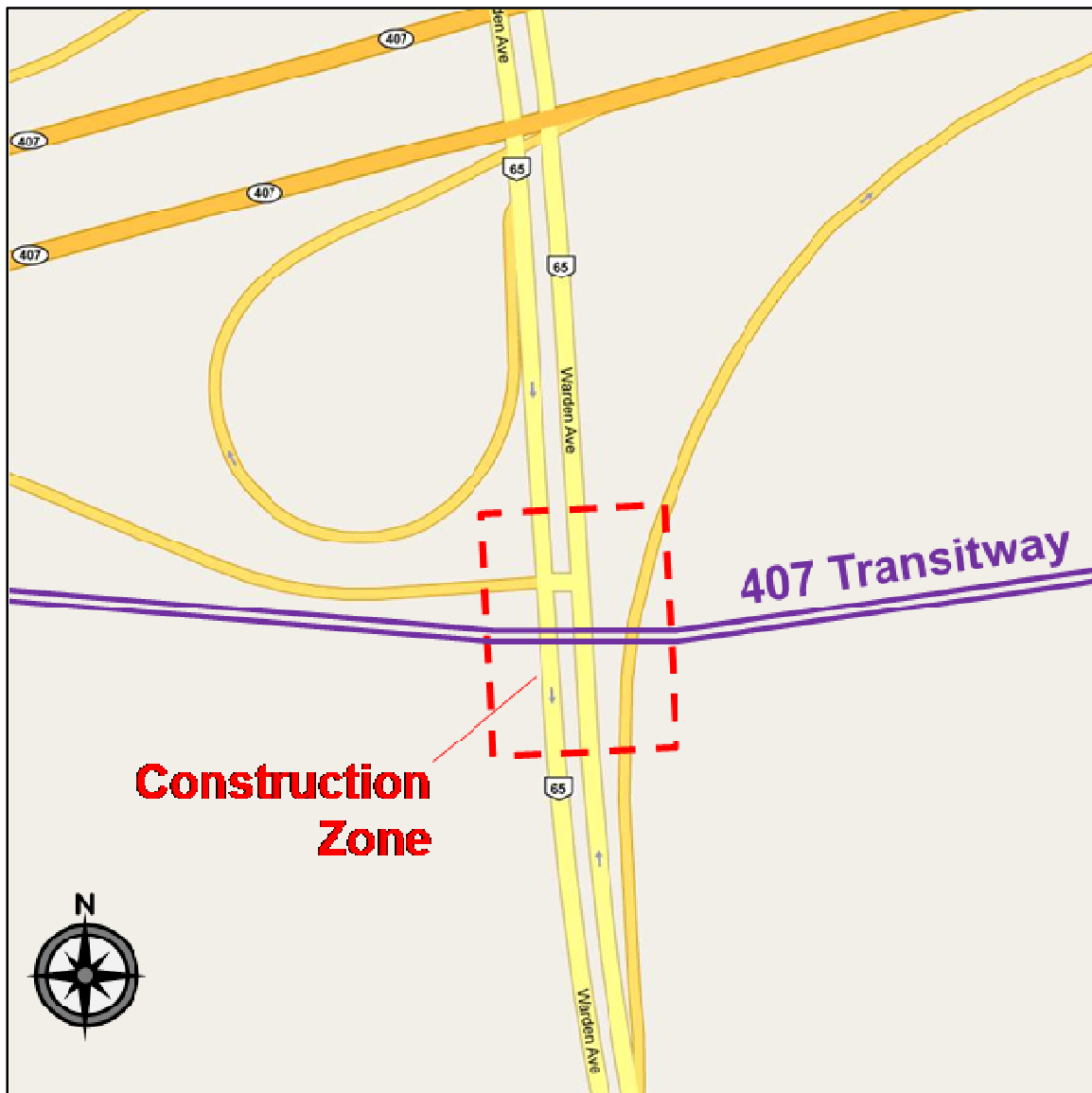


Exhibit 11-2: Aerial View of Warden Avenue Construction Zone

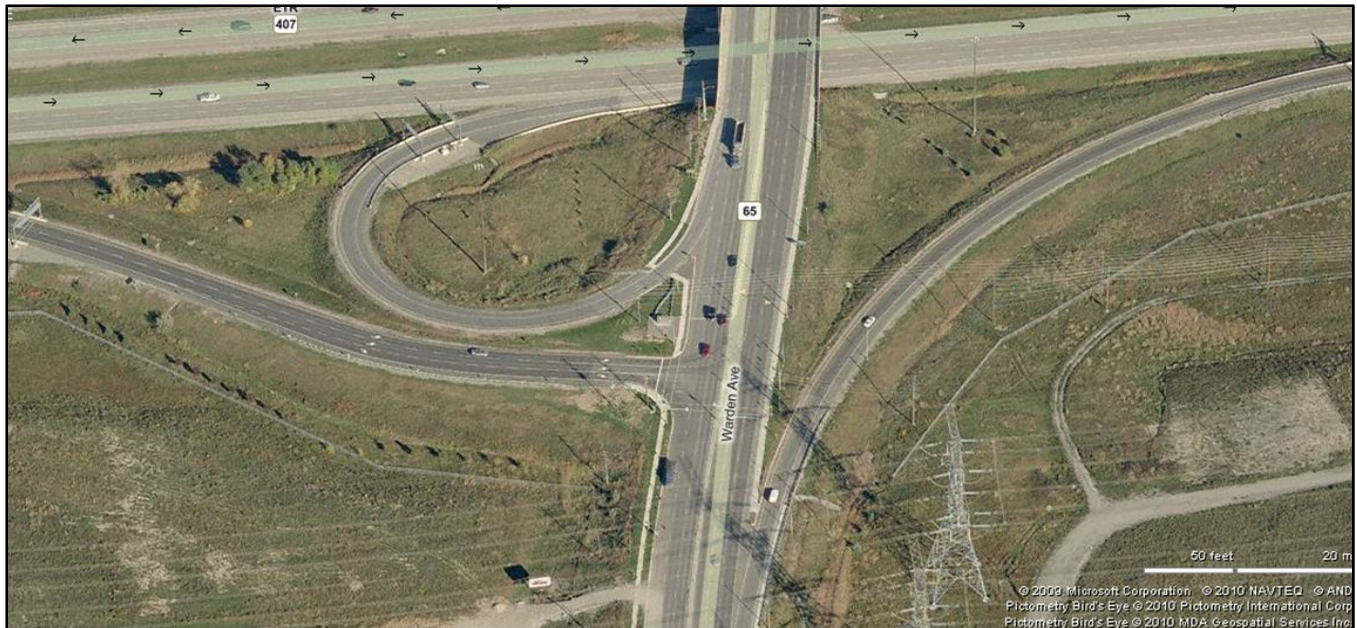


Exhibit 11-3: Street View of Warden Avenue Looking South



11.1 Construction Staging

Construction of the Highway 407 Transitway at Warden Avenue is projected to occur in 4 stages:

- **Stage 1** – The existing 407 southeast ramp (northbound Warden Avenue access to 407 eastbound) will be closed for construction access with a temporary ramp detour built further north. Warden Avenue will have three northbound through lanes; and three southbound through lanes.
- **Stage 2** – The 407 southeast ramp (northbound Warden Avenue access to 407 eastbound) will reopen and the temporary ramp detour will be dismantled. The east cross section of Warden Avenue will be closed for construction access. Warden Avenue will have two northbound through lanes; two southbound through lanes; and one reversible northbound / southbound centre lane.
- **Stage 3** – The east cross section of Warden Avenue will reopen and the centre cross section of Warden Avenue will be closed for construction access. Warden Avenue will have three northbound through lanes; and three southbound through lanes.
- **Stage 4** – The centre cross section of Warden Avenue will reopen and the west cross section of Warden Avenue will be closed for construction access. Warden Avenue will have two northbound through lanes; two southbound through lanes; and one reversible northbound / southbound centre lane.

The 60% preliminary design construction stage drawings for Warden Avenue are in **Appendix I**. The northbound and southbound lane configurations for the pre-construction condition and by construction stage are shown in **Exhibit 11-4**.

Exhibit 11-4: Warden Avenue Lane Configuration By Construction Stage

Construction Stage	Lane Configuration									
	Southbound					Northbound				
	Lane 5	Lane 4	Lane 3	Lane 2	Lane 1	Lane 1	Lane 2	Lane 3	Lane 4	Lane 5
Pre-Construction Condition			↓	↓	↓	↑	↑	↑		
Stage 1			↓	↓	↓	↑	↑	↑		
Stage 2			↓	↓		↕ Reversible Lane	↑	↑	↕ Construction Site Access	
Stage 3		↓	↓	↓		↕ Construction Site Access	↑	↑	↑	
Stage 4	↕ Construction Site Access		↓	↓		↕ Reversible Lane	↑	↑		

11.2 Traffic Operations Analysis

The results of the Warden Avenue traffic operations analysis are summarized in **Exhibit 11-5** and **Exhibit 11-6** for the weekday am and weekday pm peak hours, respectively.

During the am peak hour, southbound traffic operations on Warden Avenue near the 407 Highway westbound off-ramp terminal are projected to operate at above capacity conditions. In the pm peak hour, northbound traffic operations on Warden Avenue near the 407 Highway westbound off-ramp terminal are projected to operate at above capacity conditions. During the temporary construction period, one additional northbound lane will be required in the pm peak hour along this section of Warden Avenue (approximately 350 metres) to increase northbound roadway capacity to handle traffic. Temporarily reversing one southbound lane to a northbound lane is projected to eliminate over capacity conditions on northbound traffic operations but is projected to cause southbound traffic operations on Warden Avenue to operate at capacity conditions. No additional measures will be required in the am peak period.

Exhibit 11-5: Impact of Construction of 407 Crossings on Warden Avenue Capacity (Weekday Am Peak Hour)

Type Of Count ⁽¹⁾	Location(s)	Construction Sequence	Traffic Volumes				Number of Lanes		Nominal Capacity (pcu/hr)	Volume to Capacity Ratio			
			North of 407 ETR		South of 407 ETR					North of 407 ETR		South of 407 ETR	
			Northbound	Southbound	Northbound	Southbound	Northbound	Southbound		Northbound	Southbound	Northbound	Southbound
BACKGROUND CONDITION (2023) – WITHOUT CONSTRUCTION													
TMC	Hwy. 407 EB Off-Ramp @ Warden Avenue	Stage 1, 3	1,531	2,423	1,186	3,129	3	3	950	0.54	0.85	0.42	1.10
		Stage 2, 4	1,531	2,423	1,186	3,129	3	3	950	0.54	0.85	0.42	1.10
	Hwy. 407 WB Off-Ramp @ Warden Avenue	Stage 1~4	2,005	1,890	1,770	2,575	3	3	950	0.70	0.66	0.62	0.90
ATR	North of 407 ETR / South of 407 ETR	Stage 1~4	770	1,500	1,345	3,199	3	3	950	0.27	0.53	0.47	1.12
BACKGROUND CONDITION (2023) – WITH CONSTRUCTION													
TMC	Hwy. 407 EB Off-Ramp @ Warden Avenue	Stage 1, 3	1,531	2,423	1,186	3,129	3	3	850	0.60	0.95	0.47	1.23
		Stage 2, 4	1,531	2,423	1,186	3,129	2	3	850	0.90	0.95	0.70	1.23
	Hwy. 407 WB Off-Ramp @ Warden Avenue	Stage 1~4	2,005	1,890	1,770	2,575	3	3	850	0.79	0.74	0.69	1.01
ATR	North of 407 ETR / South of 407 ETR	Stage 1~4	770	1,500	1,345	3,199	2	3	850	0.45	0.59	0.79	1.25

1. TMC = Turning Movement Counts; ATR = Automatic Traffic Recorder;

 = Reversible Lane Strategy

Red = V/C Ratio > 1.0

Exhibit 11-6: Impact of Construction of 407 Crossings on Warden Avenue Capacity (Weekday Pm Peak Hour)

Type Of Count ⁽¹⁾	Location(s)	Construction Sequence	Traffic Volumes				Number of Lanes		Nominal Capacity (pcu/hr)	Volume to Capacity Ratio			
			North of 407 ETR		South of 407 ETR					North of 407 ETR		South of 407 ETR	
			Northbound	Southbound	Northbound	Southbound	Northbound	Southbound		Northbound	Southbound		
BACKGROUND CONDITION (2023) – WITHOUT CONSTRUCTION													
TMC	Hwy. 407 EB Off-Ramp @ Warden Avenue	Stage 1, 3	2,692	1,699	2,602	1,668	3	3	950	0.94	0.60	0.91	0.59
		Stage 2, 4	2,692	1,699	2,602	1,668	3	3	950	0.94	0.60	0.91	0.59
	Hwy. 407 WB Off-Ramp @ Warden Avenue	Stage 1~4	2,502	1,897	2,444	1,937	3	3	950	0.88	0.67	0.86	0.68
ATR	North of 407 ETR / South of 407 ETR	Stage 1~4	1,546	921	2,190	1,318	3	3	950	0.54	0.32	0.77	0.46
BACKGROUND CONDITION (2023) – WITH CONSTRUCTION (WITHOUT REVERSIBLE LANE)													
TMC	Hwy. 407 EB Off-Ramp @ Warden Avenue	Stage 1, 3	2,692	1,699	2,602	1,668	3	3	850	1.06	0.67	1.02	0.65
		Stage 2, 4	2,692	1,699	2,602	1,668	2	3	850	1.58	0.67	1.53	0.65
	Hwy. 407 WB Off-Ramp @ Warden Avenue	Stage 1~4	2,502	1,897	2,444	1,937	3	3	850	0.98	0.74	0.96	0.76
ATR	North of 407 ETR / South of 407 ETR	Stage 1~4	1,546	921	2,190	1,318	2	3	850	0.91	0.36	1.29	0.52
BACKGROUND CONDITION (2023) – WITH CONSTRUCTION (WITH REVERSIBLE LANE)													
TMC	Hwy. 407 EB Off-Ramp @ Warden Avenue	Stage 1, 3	2,692	1,699	2,602	1,668	3	3	850	1.06	0.67	1.02	0.65
		Stage 2, 4	2,692	1,699	2,602	1,668	3	2	850	1.06	1.00	1.02	0.98
	Hwy. 407 WB Off-Ramp @ Warden Avenue	Stage 1~4	2,502	1,897	2,444	1,937	3	3	850	0.98	0.74	0.96	0.76
ATR	North of 407 ETR / South of 407 ETR	Stage 1~4	1,546	921	2,190	1,318	3	2	850	0.61	0.54	0.86	0.78

1. TMC = Turning Movement Counts; ATR = Automatic Traffic Recorder;

= Reversible Lane Strategy

Red = V/C Ratio > 1.0

12. CONCLUSION

12.1 Summary of Impacts

Exhibit 12-1 provides a summary of the traffic impacts at major arterial roadways related to construction of the 407 Transitway. At arterial and construction stages where there are traffic impacts, these are rated in three categories: Moderate – V/C Ratio 1.01 to 1.10; Significant – V/C Ratio 1.11 to 1.20; and Extreme – V/C Ratio 1.21 and above.

Exhibit 12-1: Summary of Impact of Construction of 407 Crossings on Arterial Roadway Capacity (Turning Movement Counts) Background Condition (2023) – With Construction

Arterial Roadway	Cross Street	Peak Hour	Const. Stage	Travel Lanes ⁽¹⁾		V/C Ratios > 1.0 ⁽¹⁾				Const. Impact Rating
				Northbound	Southbound	North of 407 ETR		South of 407 ETR		
						Northbound	Southbound	Northbound	Southbound	
Jane Street	Highway 407 Westbound Off-Ramp	Am	1	3	3	-	-	-	-	
			3	3	3	-	-	-	-	
			2, 4	3	3	-	-	-	-	
		Pm	1	3	3	-	1.15	-	-	Significant
			3	3	3	-	1.15	-	-	Significant
			2, 4	3	3	-	1.15	-	-	Significant
Keele Street	Highway 407 Eastbound Off-Ramp	Am	1	3	3	-	-	-	-	
			2	2	3	1.05	-	-	-	Moderate
		Pm	1	3	3	-	-	-	-	
			2	2	3	1.11	-	1.16	-	Moderate
		Pm Rev. Lane	2	3	2	-	-	-	-	
Dufferin Street	Highway 407 Westbound Off-Ramp	Am	1	3	3	-	-	-	1.01	Moderate
			2	2	3	-	-	-	-	
			3	2	3	-	-	-	-	
		Pm	1	3	3	1.01	-	-	-	Moderate
			2	2	3	1.51	-	1.33	-	Extreme
			3	2	3	1.51	-	1.33	-	Extreme
		Pm Rev. Lane	1	3	3	1.01	-	-	-	Moderate
			2	3	2	1.01	-	-	1.03	Moderate
			3	3	2	1.01	-	-	1.03	Moderate

**Exhibit 12-1: Summary of Impact of Construction of 407 Crossings on Arterial Roadway Capacity
(Turning Movement Counts) Background Condition (2023) – With Construction**

Arterial Roadway	Cross Street	Peak Hour	Const. Stage	Travel Lanes ⁽¹⁾		V/C Ratios > 1.0 ⁽¹⁾				Const. Impact Rating
				Northbound	Southbound	North of 407 ETR		South of 407 ETR		
						Northbound	Southbound	Northbound	Southbound	
Bathurst Street	Highway 407 Eastbound Off-Ramp	Am	2~5	2	3	1.07	1.03	1.01	1.09	Moderate
		Pm	2~5	2	3	1.48	-	1.20	-	Extreme
		Pm Rev. Lane	2~5	3	2	-	1.21	-	1.42	Extreme
	Highway 407 Westbound Off-Ramp	Am	2~5	2	3	1.06	-	1.06	-	Moderate
		Pm	2~5	2	3	1.92	-	1.92	-	Extreme
		Pm Rev. Lane	2~5	3	2	1.28	-	1.28	-	Extreme
Highway 7	Bathurst St. Connecting Road	Am	1, 5	3	3	1.08	-	-	-	Moderate
		Pm	1, 5	3	3	-	1.03	-	-	Moderate
Bayview Avenue	Highway 407 Eastbound Off-Ramp	Am	1~5	3	3	1.14	1.06	1.07	1.17	Significant
		Pm	1~5	3	3	1.28	1.04	1.13	1.23	Extreme
	Highway 407 Westbound Off-Ramp	Am	1, 2, 4	3	3	-	-	-	-	
			3, 5	3	3	1.05	-	-	-	Moderate
		Pm	1, 2, 4	3	3	-	-	-	-	
			3, 5	2	3	1.49	-	1.30	-	Extreme
	Pm Rev. Lane	3, 5	3	2	-	1.10	-	1.25	Significant	
		Creswick Road	Am	1~5	3	3	-	1.26	-	1.16
Pm	1~5		3	3	1.24	1.04	1.33	1.26	Extreme	
Leslie Street	Highway 407 Eastbound Off-Ramp	Am	1~2	2	2	1.57	-	-	-	Extreme
		Pm	1~2	2	2	1.21	-	1.07	1.25	Extreme
Highway 404 Northbound 407 ETR Off-Ramps	South of Highway 407	Am	1~2	1	1	-	-	-	-	
		Pm	1~2	1	1	-	-	-	-	
Rodick Road	South of Highway 407	Am	1~2	2	2	-	-	-	-	
		Pm	1~2	2	2	-	-	-	-	

**Exhibit 12-1: Summary of Impact of Construction of 407 Crossings on Arterial Roadway Capacity
(Turning Movement Counts) Background Condition (2023) – With Construction**

Arterial Roadway	Cross Street	Peak Hour	Const. Stage	Travel Lanes ⁽¹⁾		V/C Ratios > 1.0 ⁽¹⁾				Const. Impact Rating
				Northbound	Southbound	North of 407 ETR		South of 407 ETR		
						Northbound	Southbound	Northbound	Southbound	
Warden Avenue	Highway 407 Eastbound Off-Ramp	Am	1, 3	3	3	-	-	-	1.23	Extreme
			2, 4	2	3	-	-	-	1.23	Extreme
		Pm	1, 3	3	3	1.06	-	1.02	-	Moderate
			2, 4	2	3	1.58	-	1.53	-	Extreme
		Pm Rev. Lane	2, 4	3	2	1.06	-	1.02	-	Moderate
	Highway 407 Westbound Off-Ramp	Am	1~4	3	3	-	-	-	1.01	Moderate
		Pm	1~4	3	3	-	-	-	-	

1. For the Bathurst Connecting Road and Highway 7:

- Northbound = Eastbound Highway 7
- Southbound = Westbound Highway 7

For the Highway 404 Northbound 407 ETR Off-Ramps:

- Northbound = Northbound Ramp to 407 ETR Westbound
- Southbound = Northbound Ramp to 407 ETR Eastbound

12.1 Key Findings

The results of the 2023 background traffic analyses (without construction) demonstrate that traffic performance in northbound direction will deteriorate during the pm peak hour. The estimated V/C ratios will remain under 1.0 at Jane Street, Keele Street, Dufferin Street and Warden Avenue and above 1.0 at Bathurst Street, Bayview Avenue and Leslie Street. The northbound direction on Bathurst between two Off-Ramp terminals will be over-capacity conditions under 2023 background traffic conditions.

Under the 2023 background traffic condition (with construction), the additional background traffic and the closure of one northbound lane due to construction will significantly affect future Study Area arterial road performance and operations. Projected changes to the estimated V/C ratios are in the range of 11% to 40% during the weekday am and pm peak hours. The most severe congestion is project for the northbound through movement along Bathurst Street (between the Highway 7 connection ramp and Highway 407 Off-Ramp terminals). The overall findings reveal that the northbound through movement on all arterial roadways will experience capacity deficiencies due to the proposed temporary geometric configurations during construction.

12.2 Pm Peak Reversible Lane Scenario

At all arterial roadways, southbound through movement capacities are projected to decline during the 2023 background traffic condition (with construction). However, in the pm peak hour, most arterial roadways are projected to have enough southbound roadway capacity to operate with two lane cross-sections. Therefore, most arterial roadways with a third southbound lane (i.e. middle lane of the roadway), these lanes can be reversed to provide extra vehicular capacity for the northbound direction.

During the pm peak hour construction period, compared with not converting the third southbound lane, the reversible lane strategy is projected to reduce northbound congestion by up to 33% while increasing southbound V/C ratios by 13% to 25%. With the reversible lane strategy in place, the southbound direction on some arterial roadways are projected to continue to experience congestion free traffic operations during the pm peak hour. **Exhibit 12-2** summarizes the impact of the reversible lanes on arterial roadways and whether they are recommended as a traffic mitigation strategy.

Exhibit 12-2: Summary of Impacts of Reversible Lane Strategy on Arterial Roadways

Arterial Roadway	Impact of Reversible Lane Strategy				Strategy Recommended?
	Not Applicable	No Significant Impacts	Improves Northbound Capacity	Impacts Southbound Capacity	
Jane Street			•	•	No
Keele Street			•		Yes
Dufferin Street			•		Yes
Bathurst Street			•	•	Yes
Bayview Avenue			•	•	Yes
Leslie Street	•				-
Hwy. 404 Ramps	•				-
Rodick Road	•				-
Warden Avenue			•		Yes

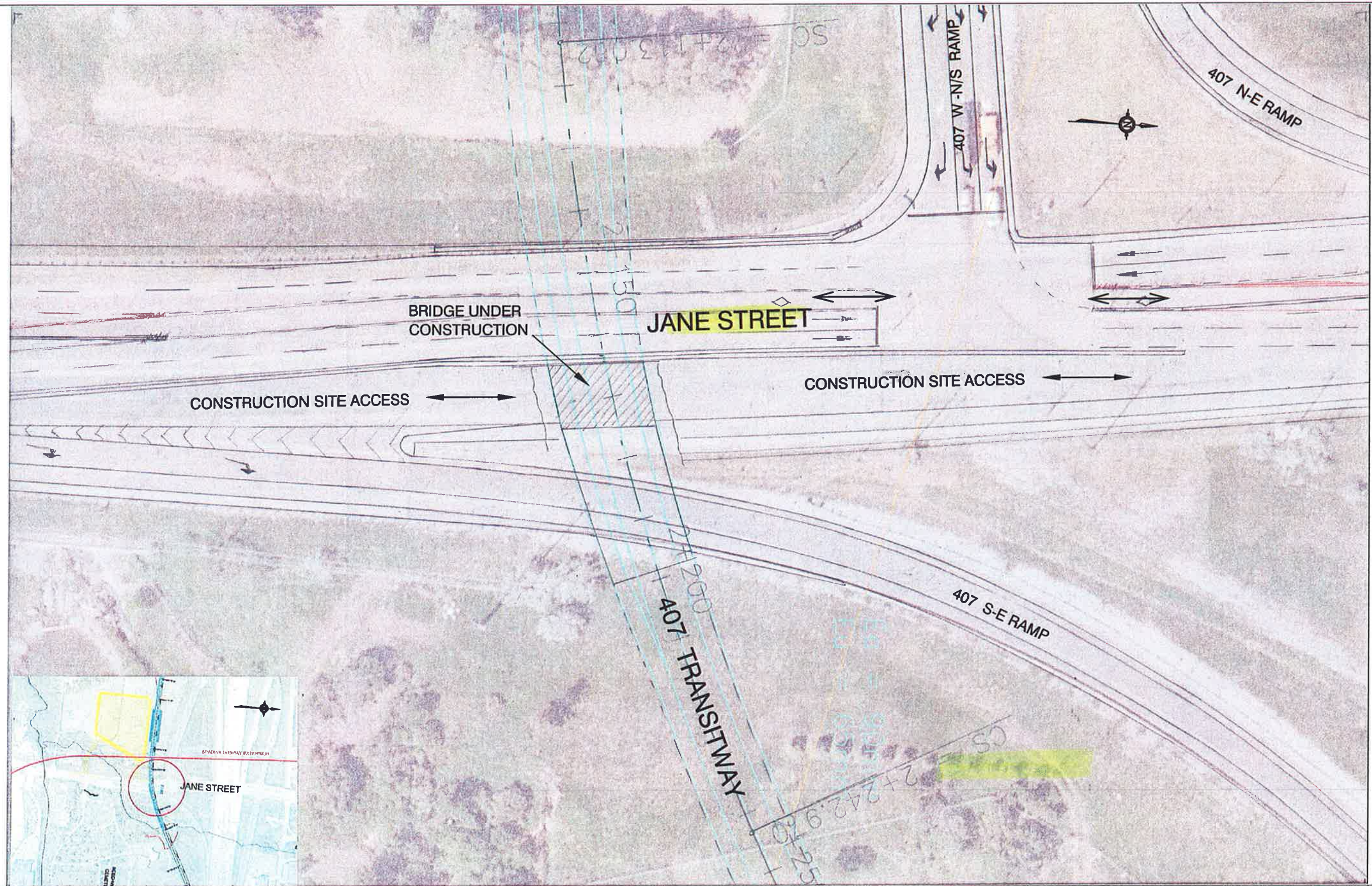
APPENDIX A

CONSTRUCTION STAGING PLANS: JANE STREET

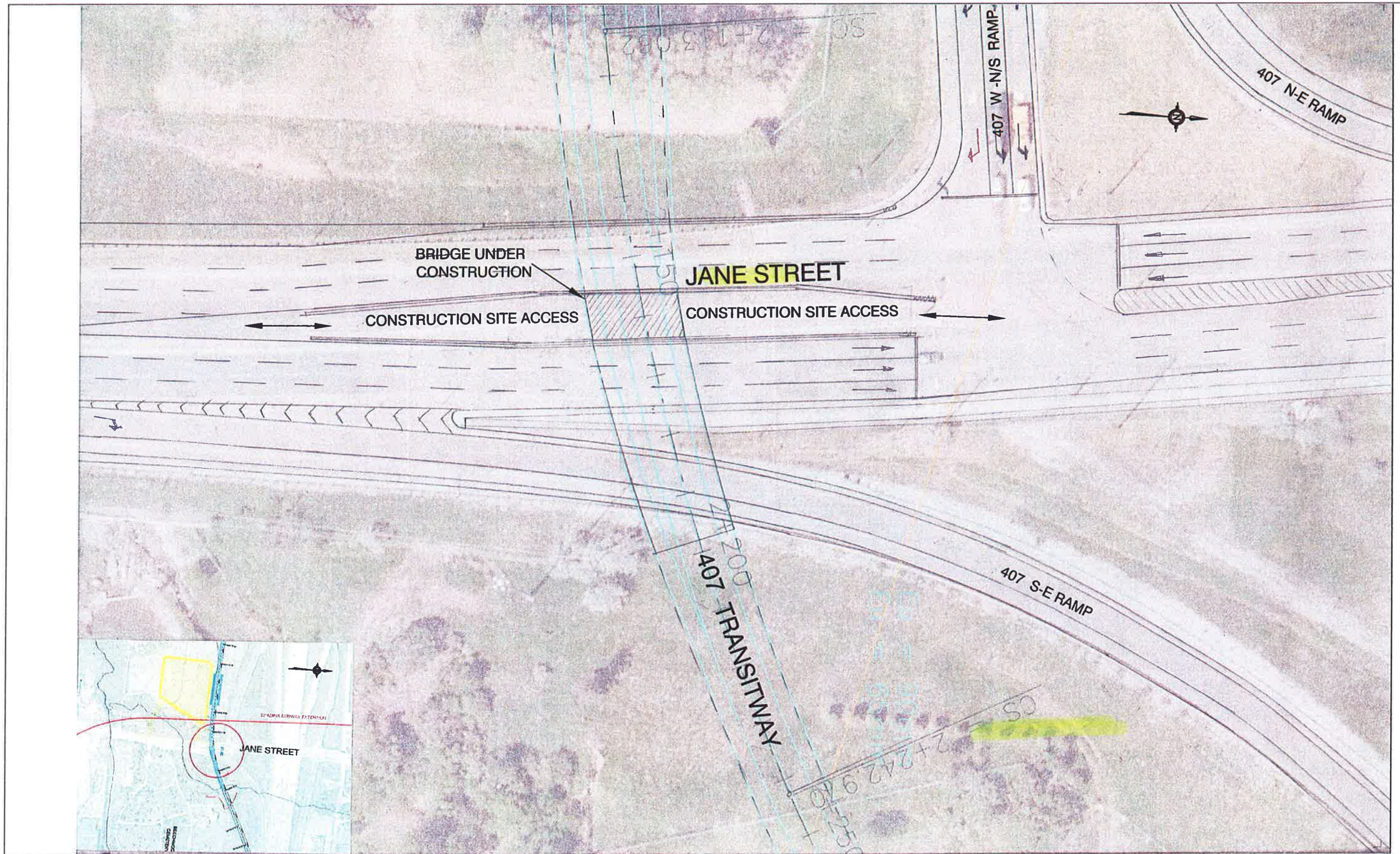


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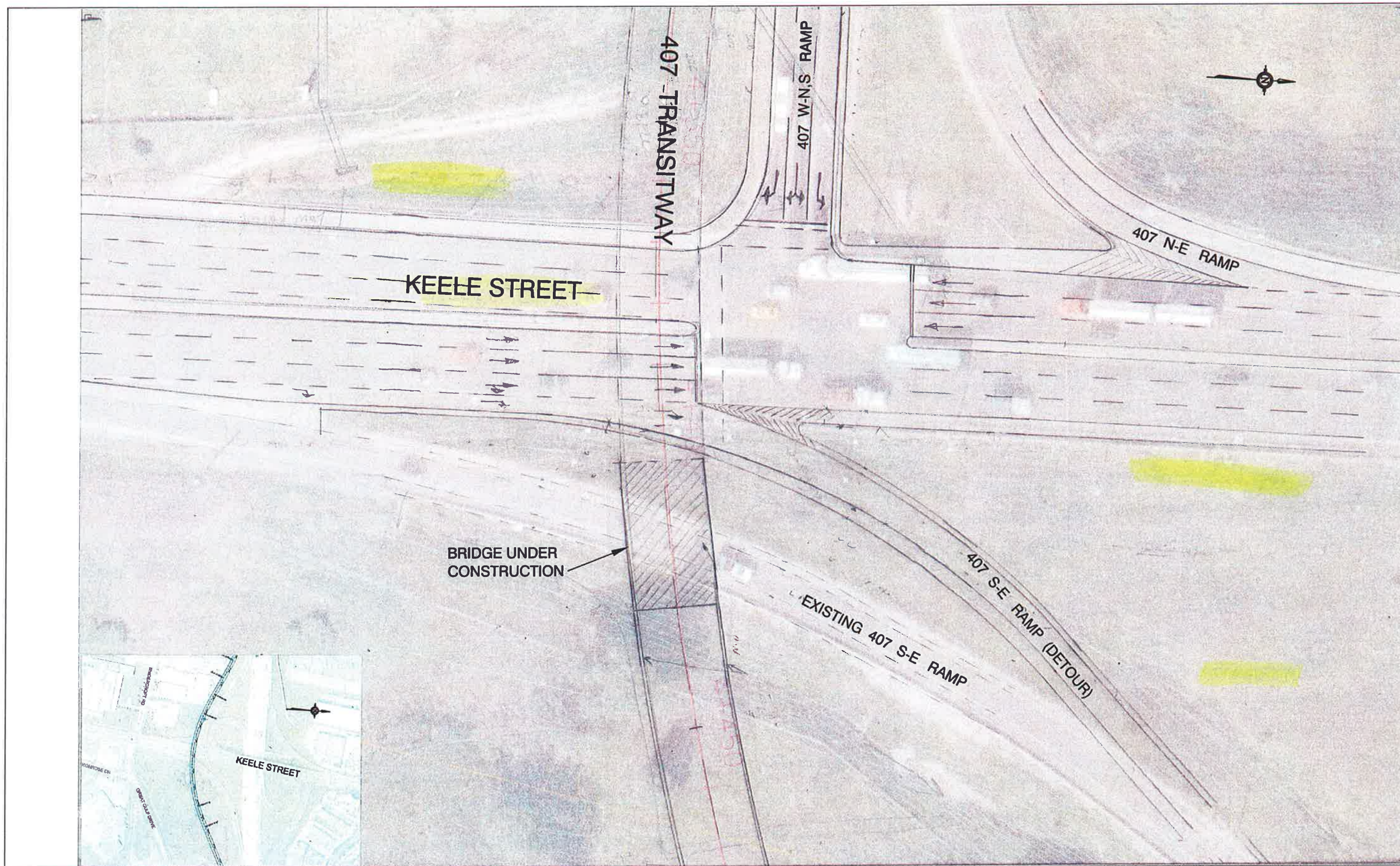


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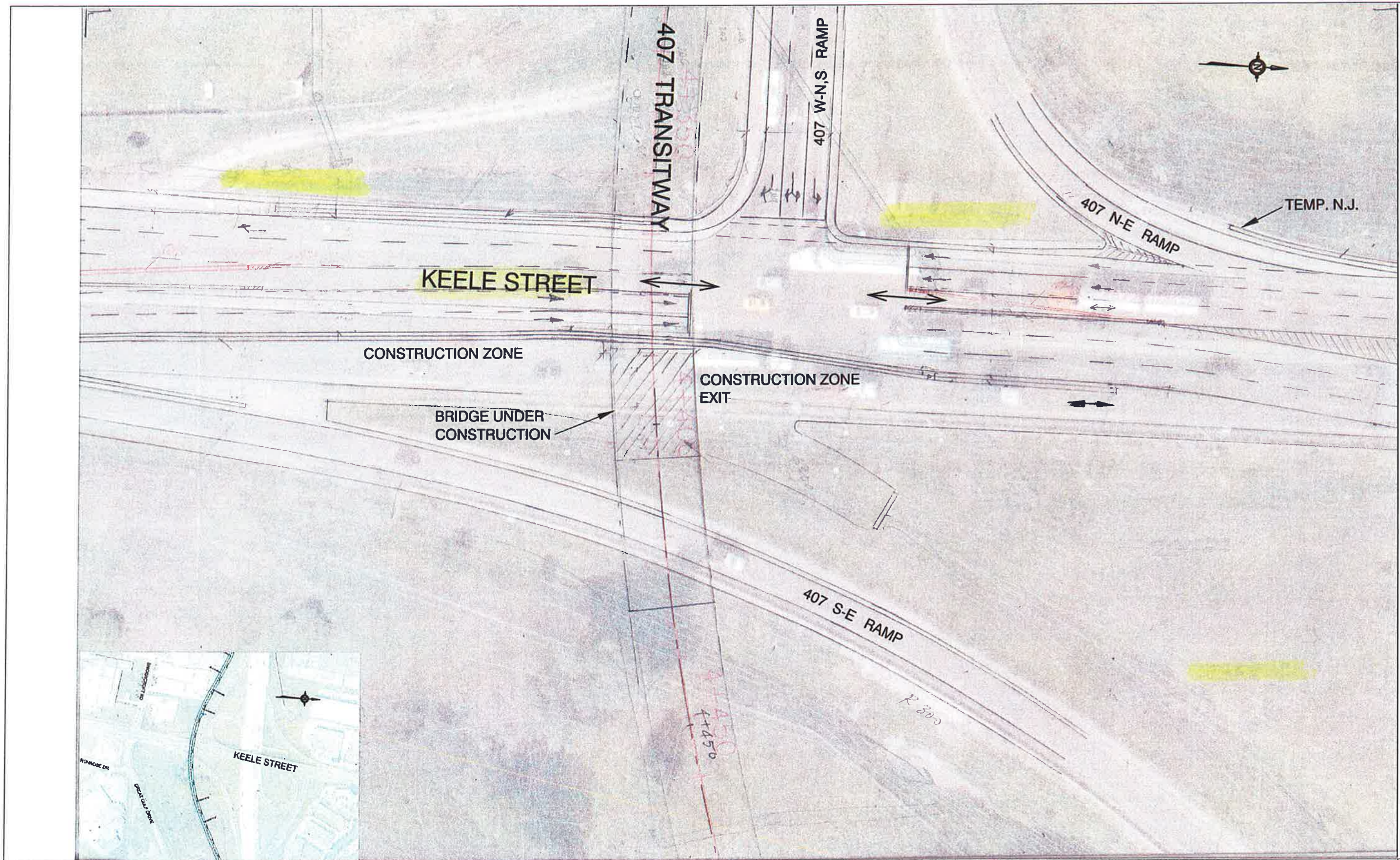
APPENDIX B

CONSTRUCTION STAGING PLANS: KEELE STREET

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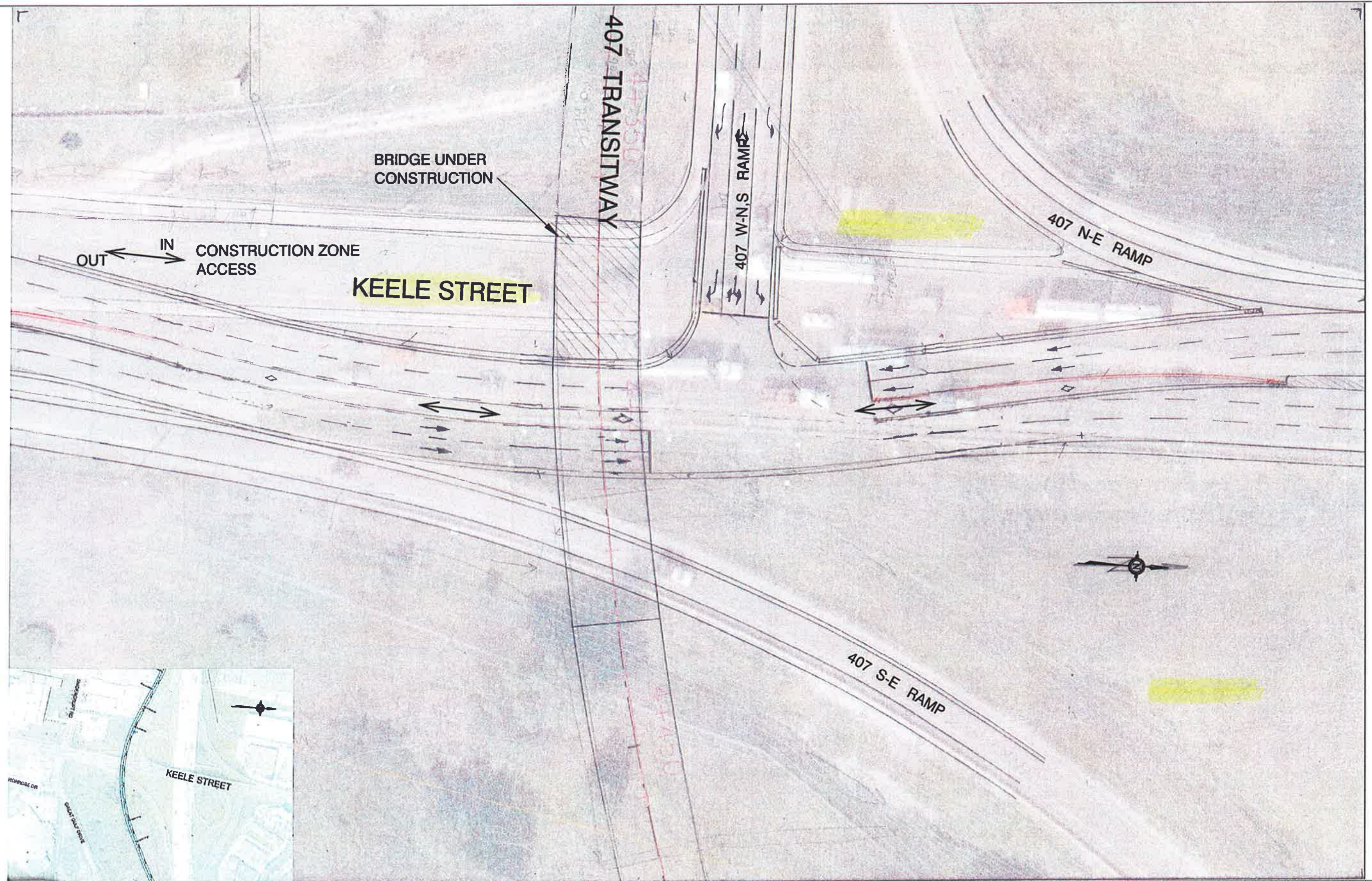
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407 TRANSITWAY - GWP 252-96-00 PRELIMINARY DESIGN (60%)
407-KEELE ST. INTERCHANGE CROSSING
POTENTIAL CONSTRUCTION SEQUENCE (STAGE - 3)

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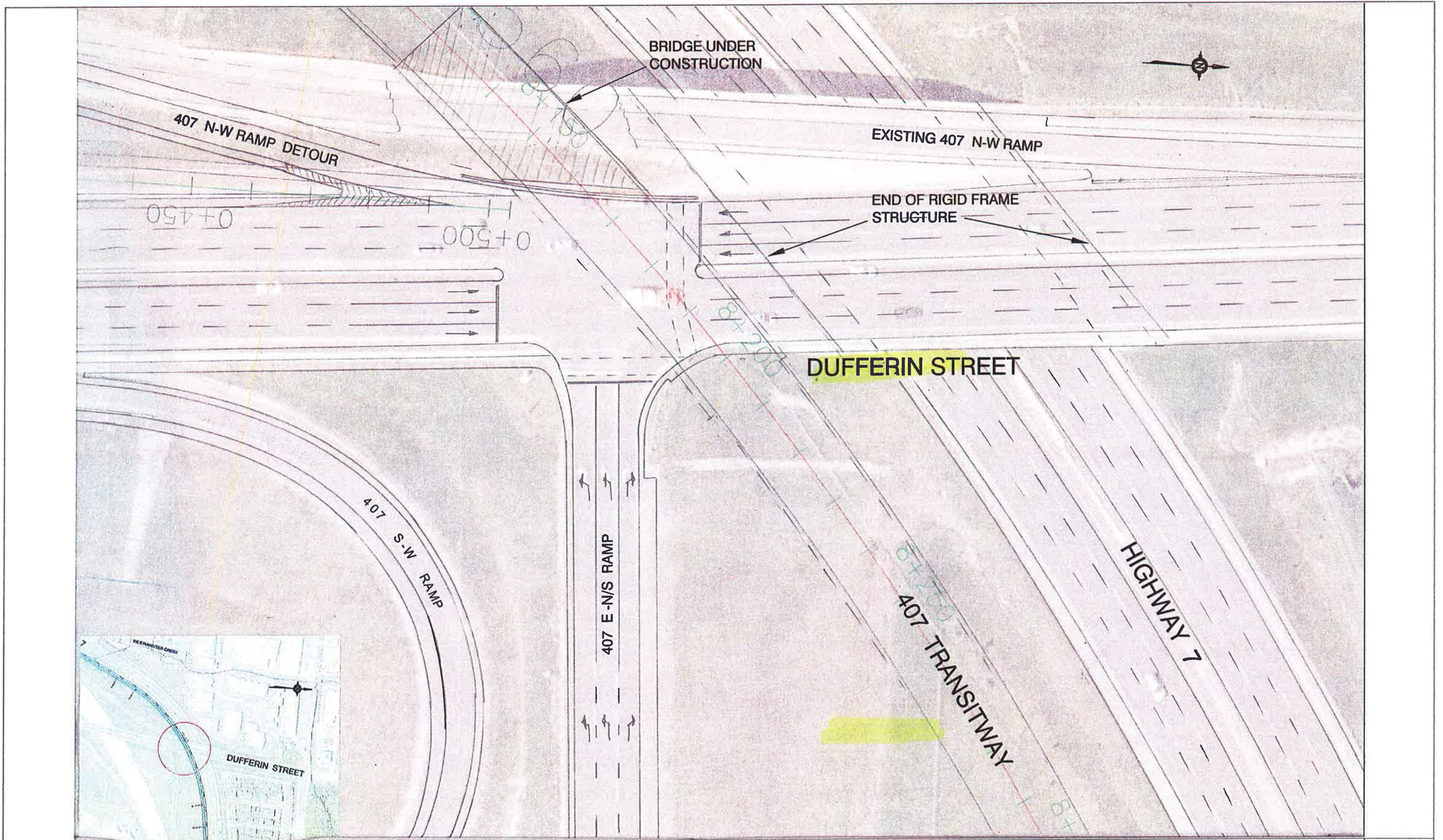
K-3
FIGURE



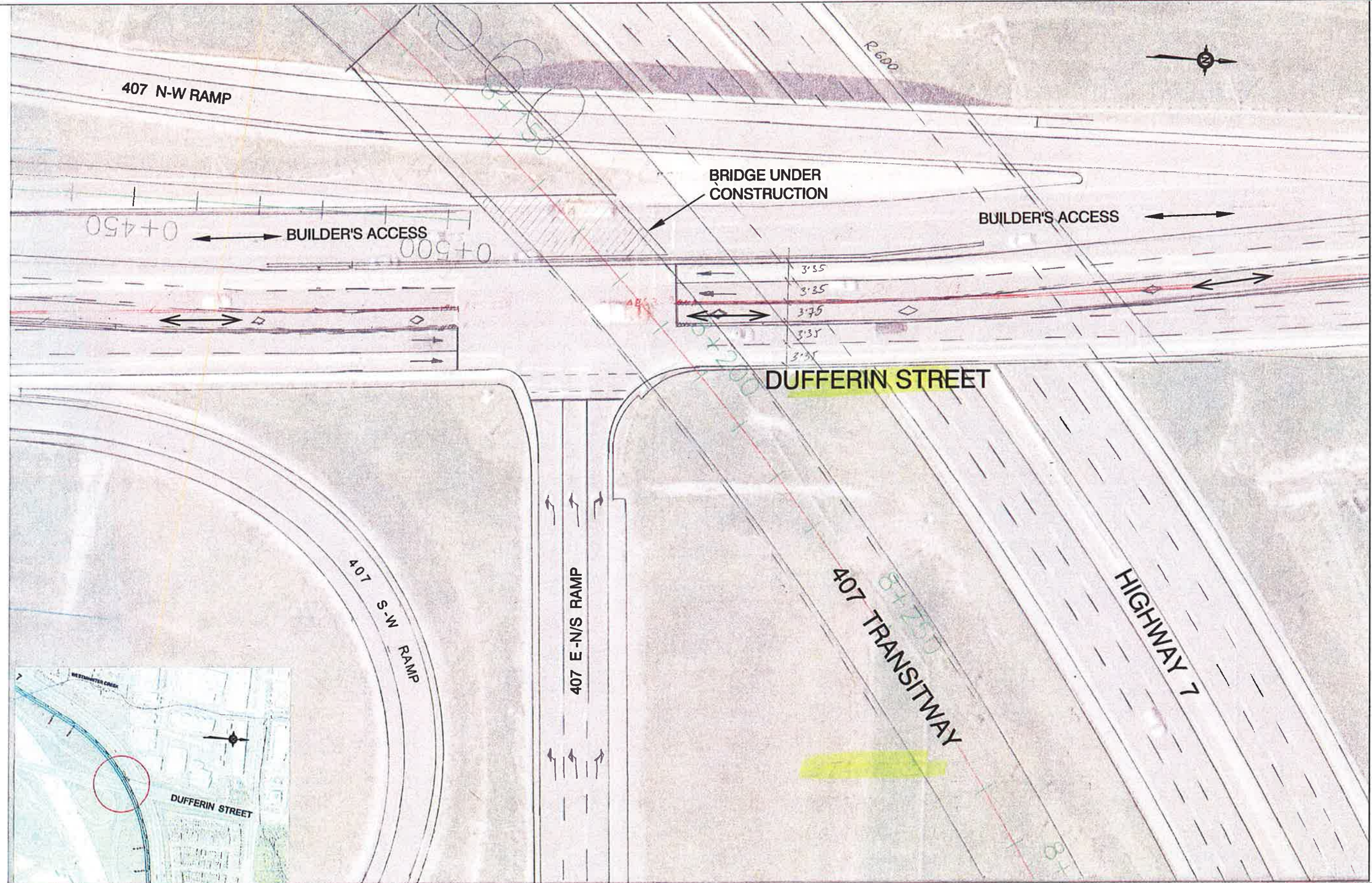
APPENDIX C

CONSTRUCTION STAGING PLANS: DUFFERIN STREET

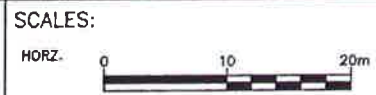
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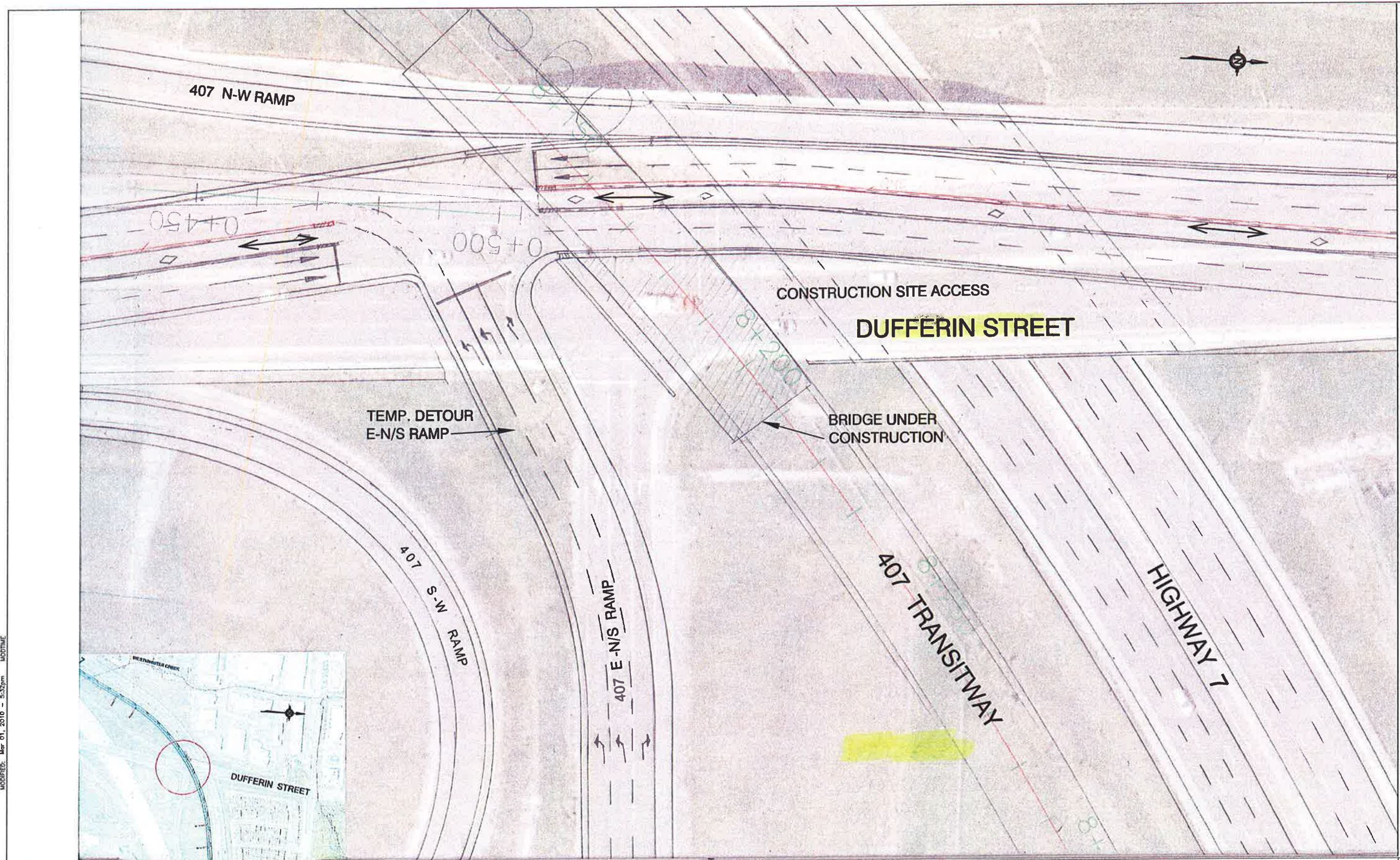


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407-DUFFERIN ST. INTERCHANGE CROSSING
POTENTIAL CONSTRUCTION SEQUENCE (STAGE - 3)

FEB 2010



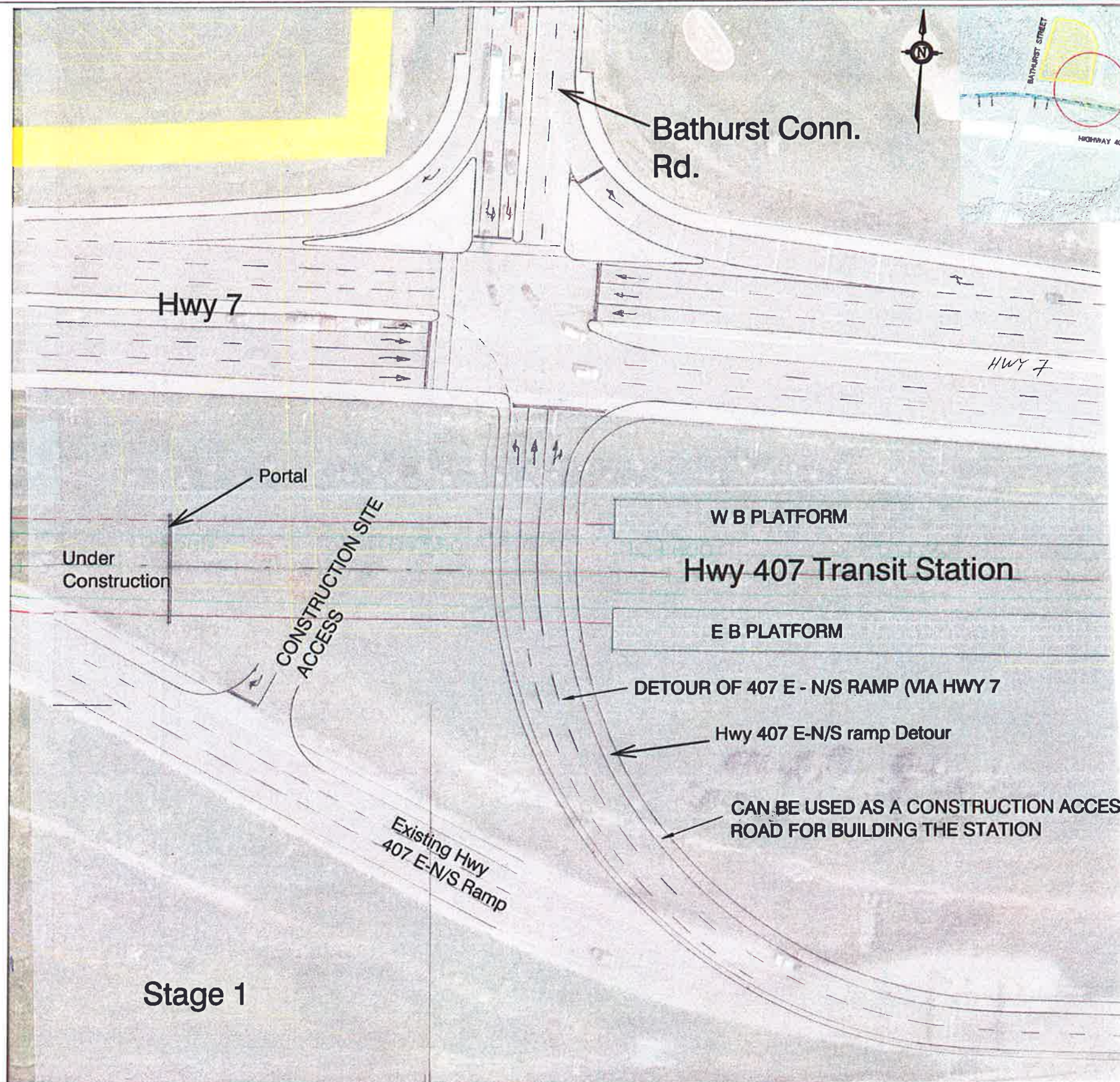
APPENDIX D

CONSTRUCTION STAGING PLANS: BATHURST STREET

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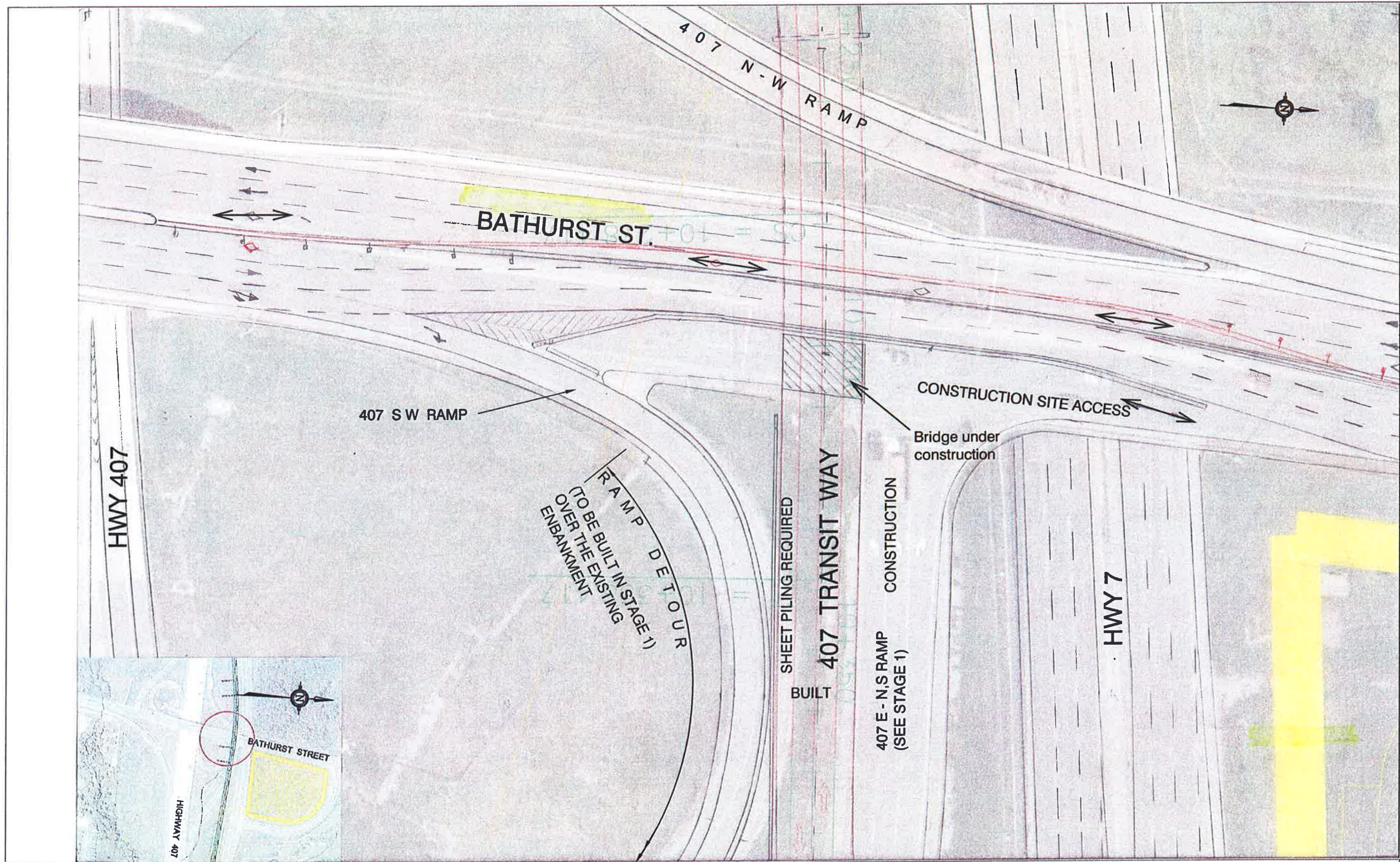
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407-BATHURST ST. INTERCHANGE CROSSING
POTENTIAL CONSTRUCTION SEQUENCE (STAGE - 1)

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B-1

FIGURE

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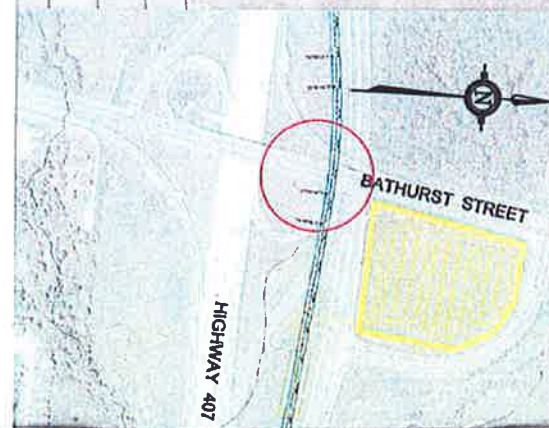
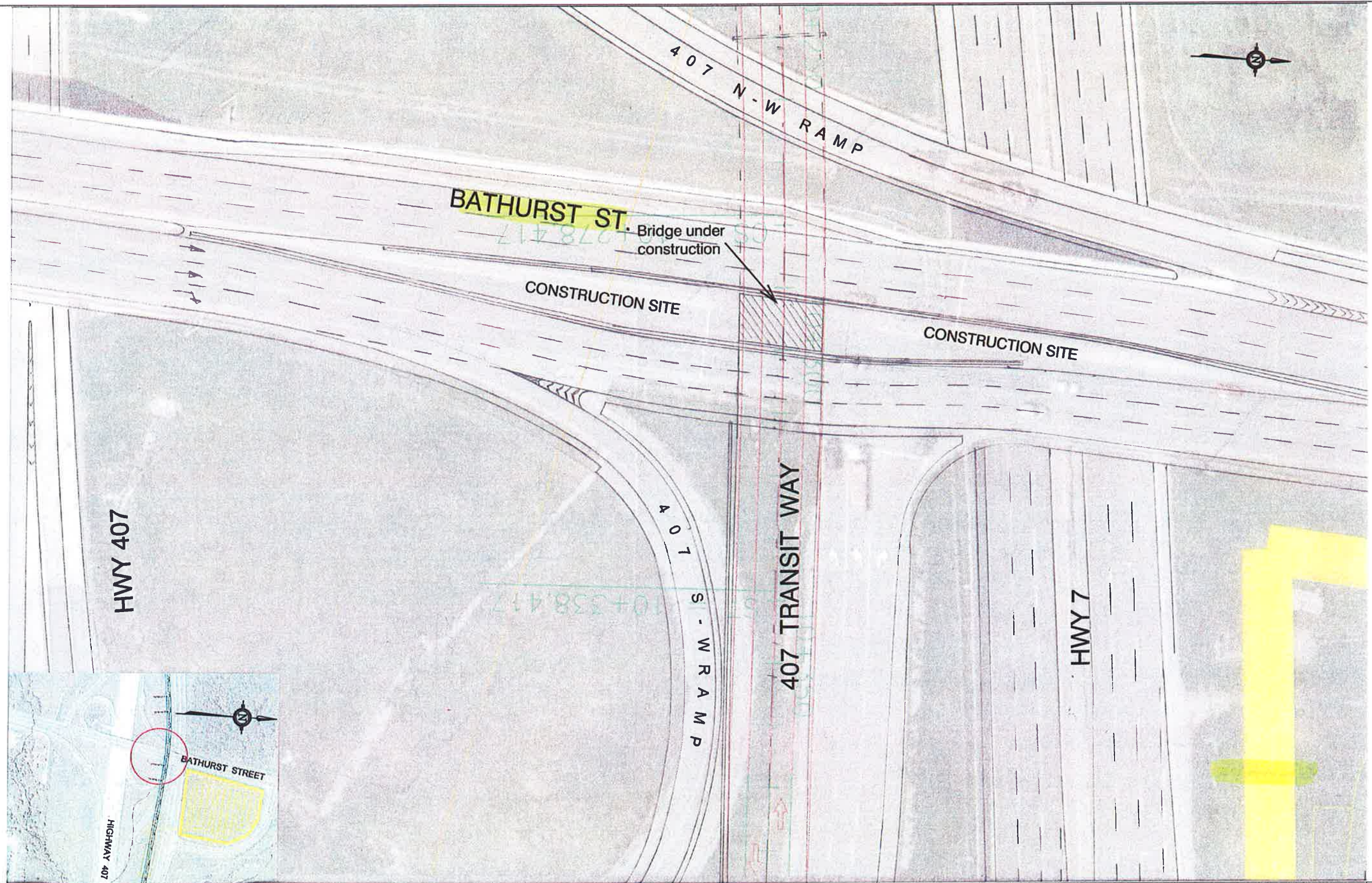
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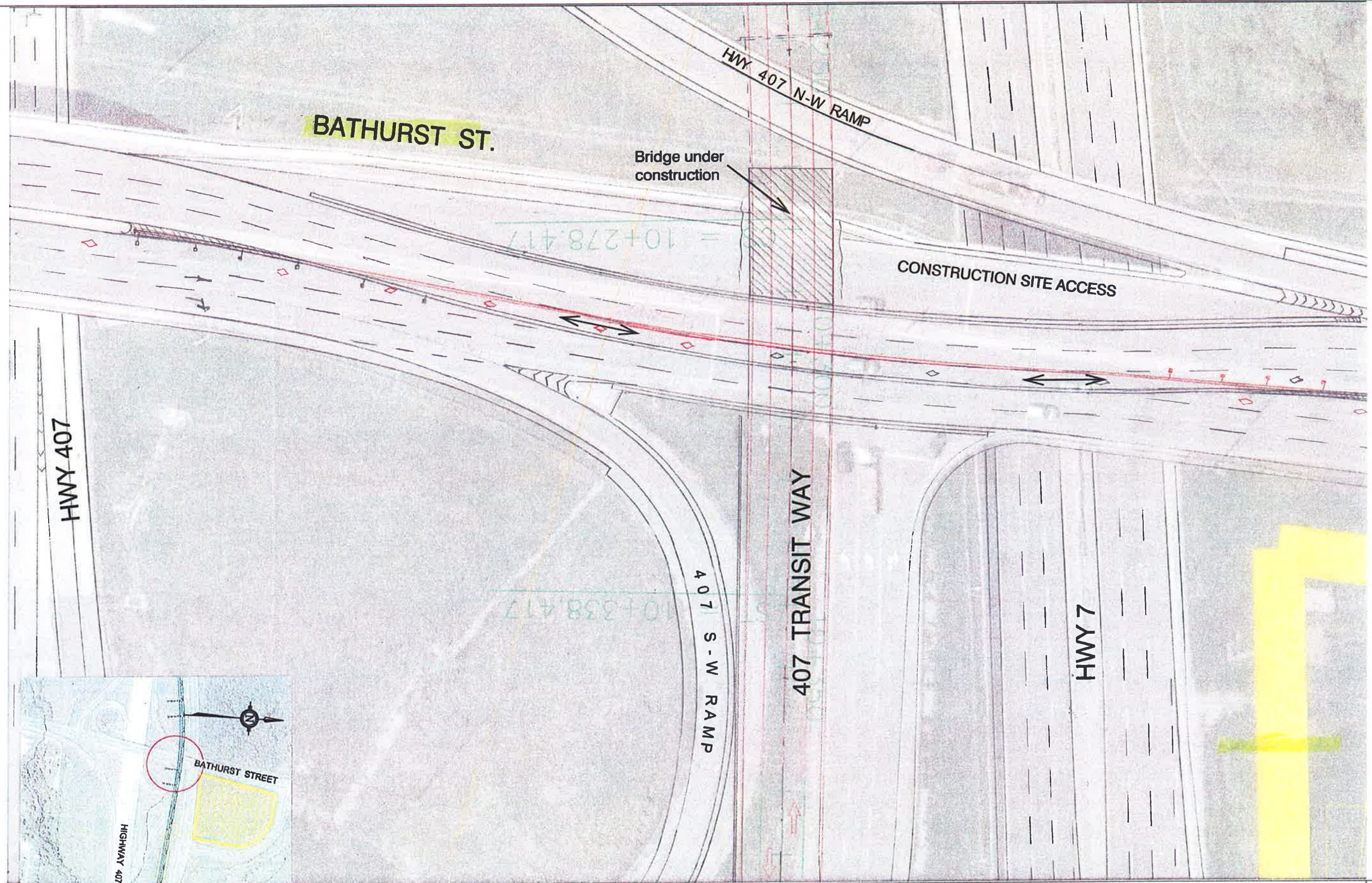
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POTENTIAL CONSTRUCTION SEQUENCE (STAGE - 2)

FEB 2010

B-3
FIGURE



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HORZ.



407 TRANSITWAY - GWP 252-96-00 PRELIMINARY DESIGN (60%)
407-BATHURST ST. INTERCHANGE CROSSING
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FEB 2010

B-4

FIGURE

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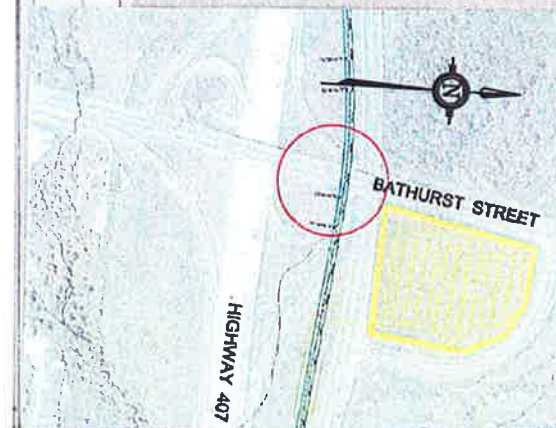
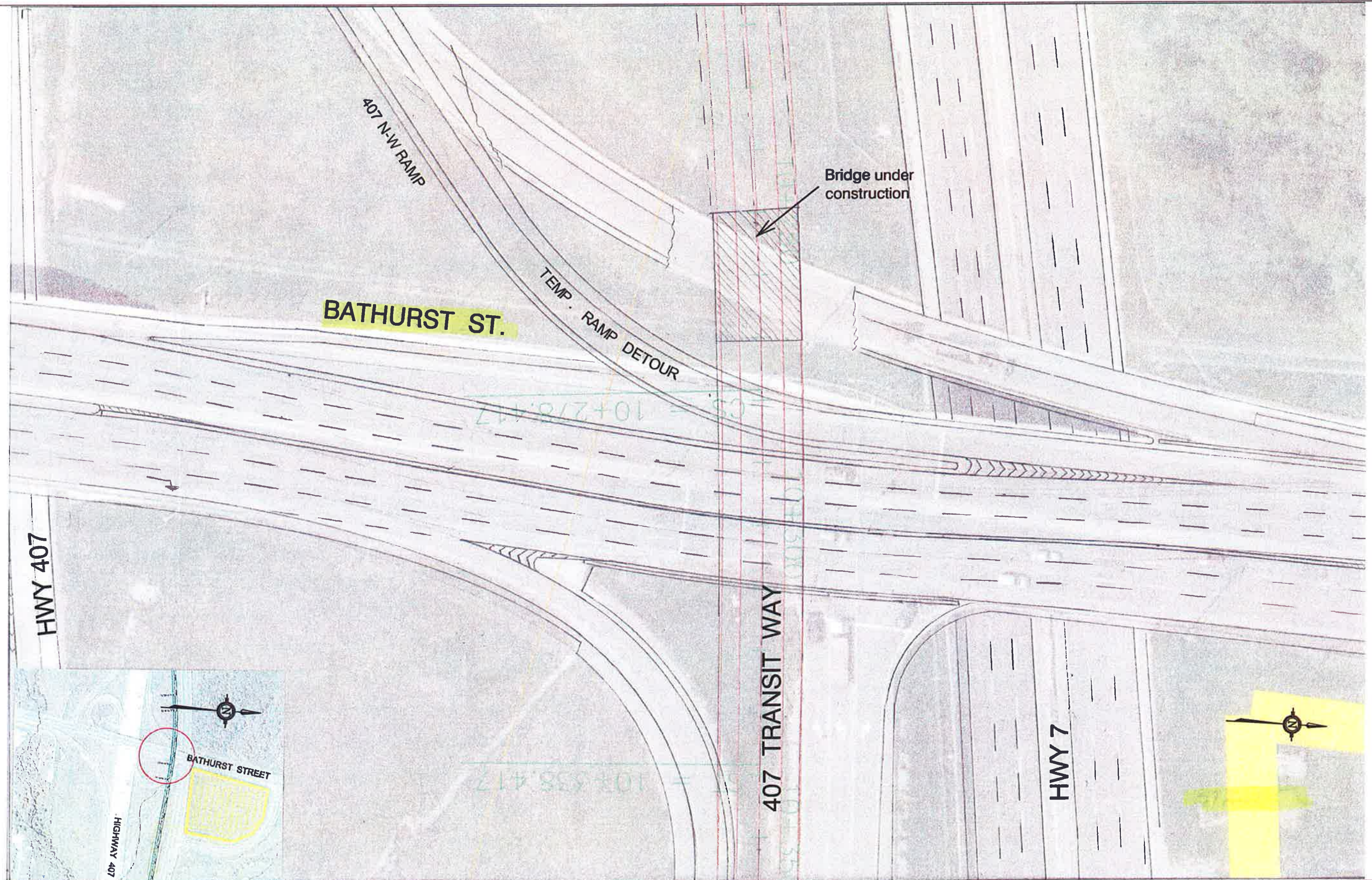
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FEB 2010

B-5
FIGURE



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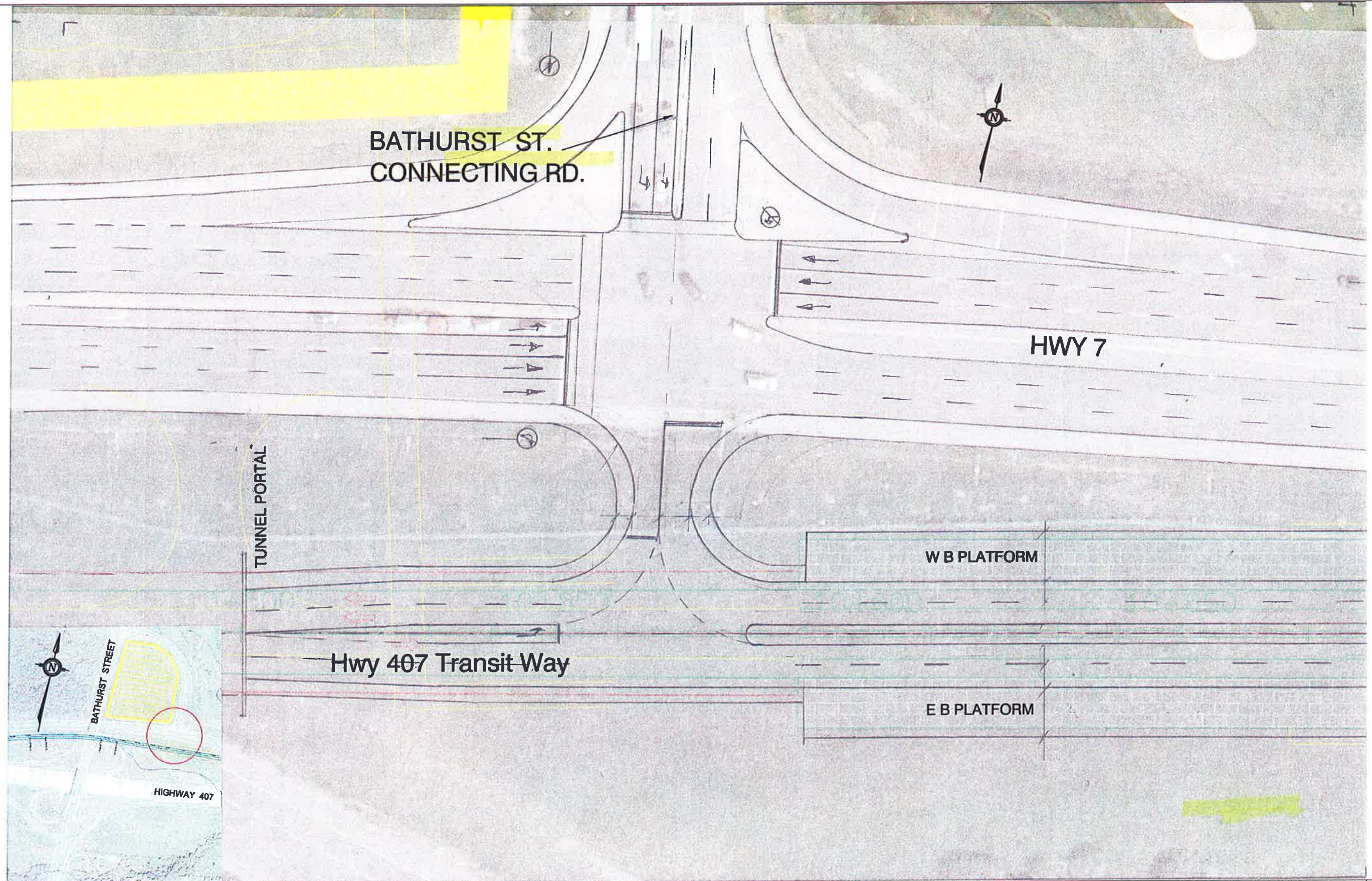
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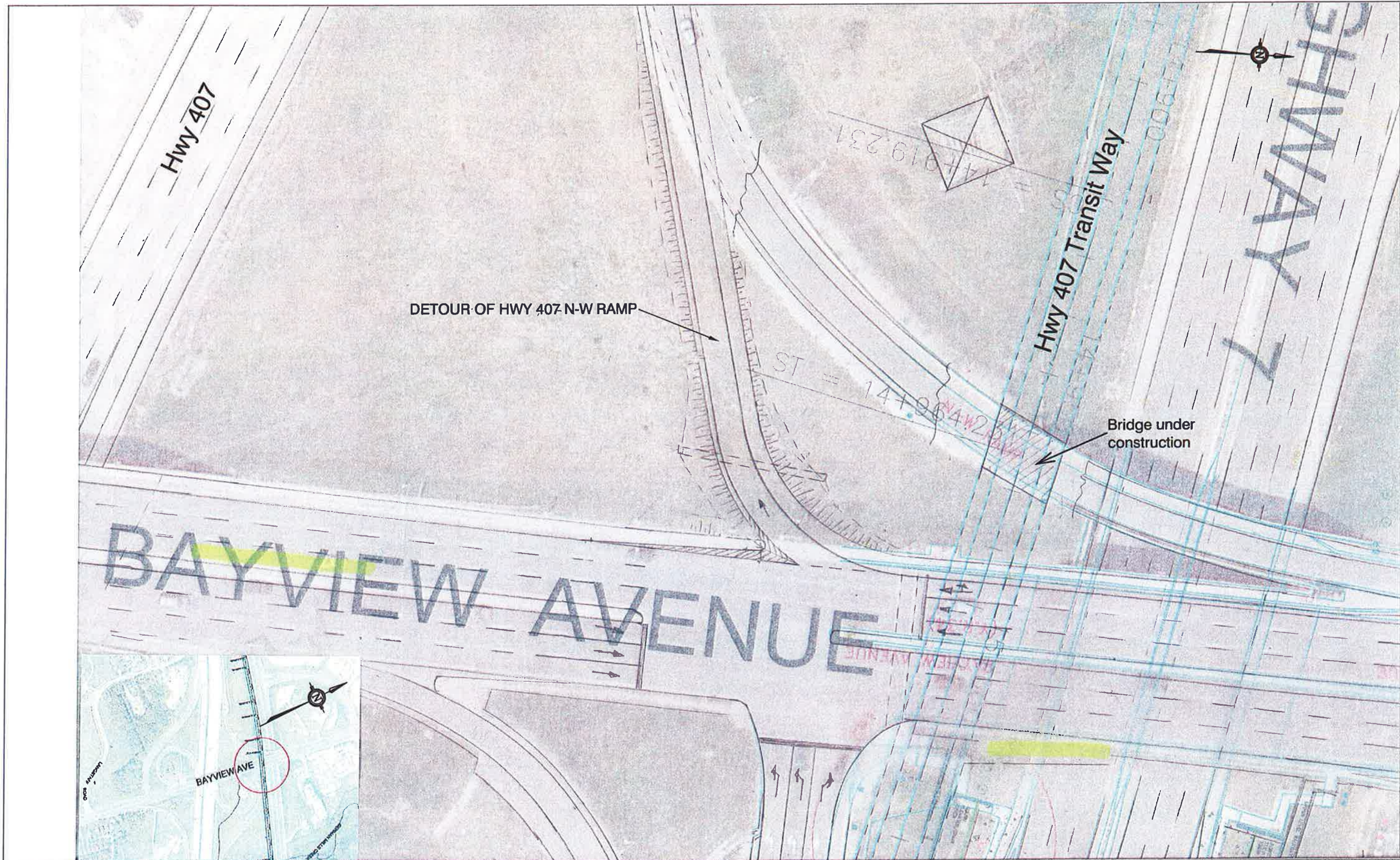
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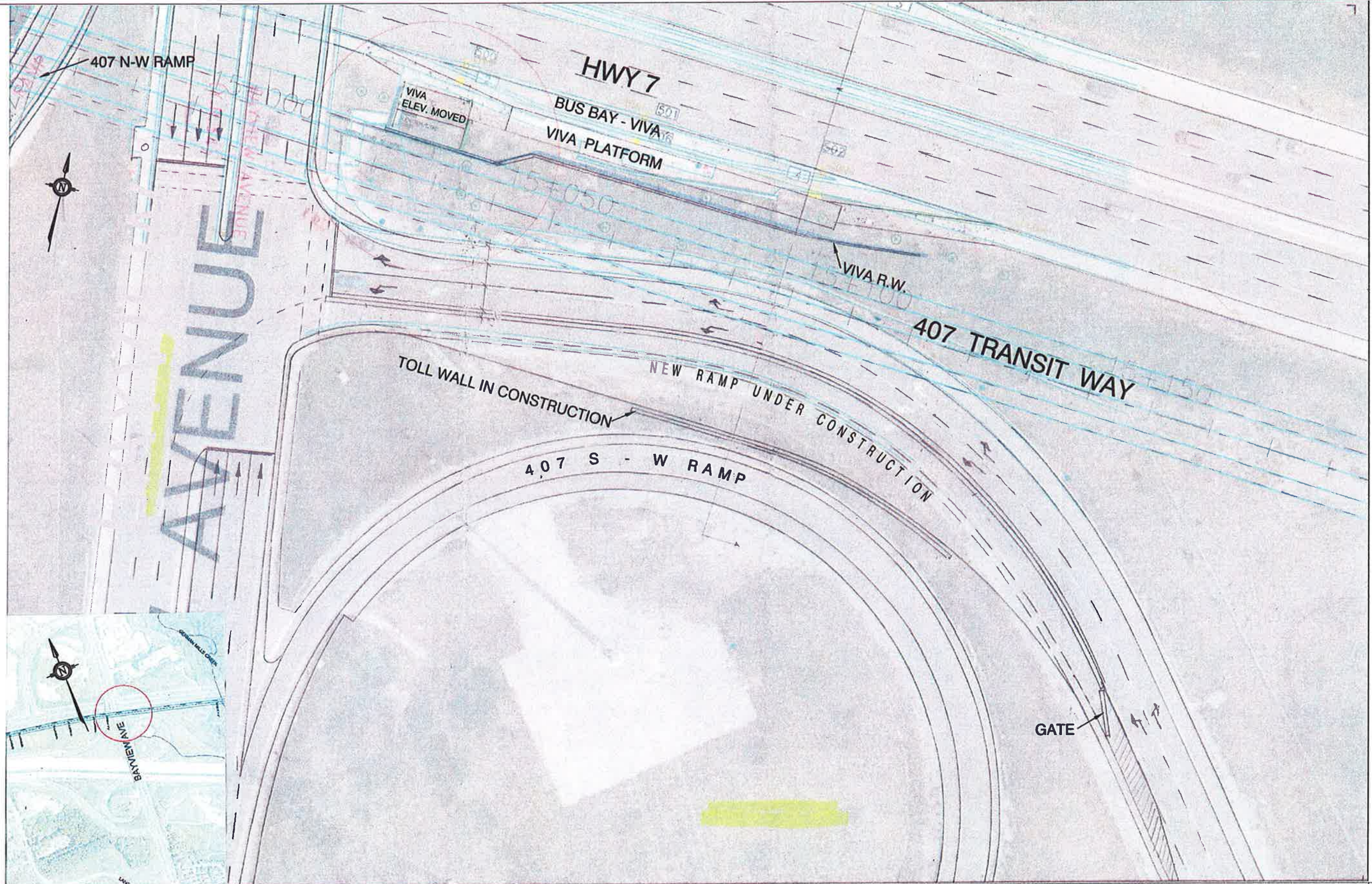
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FIGURE

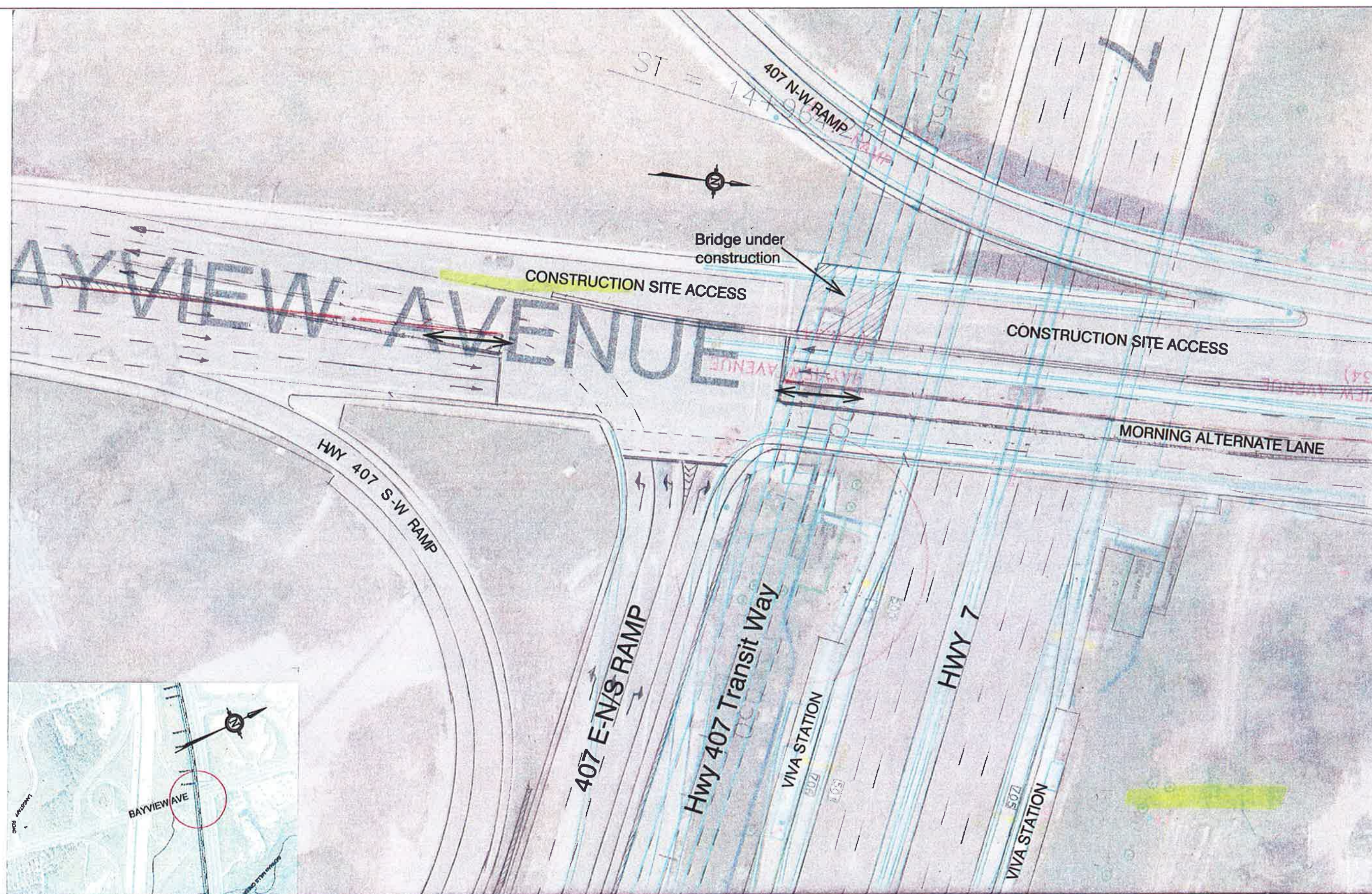


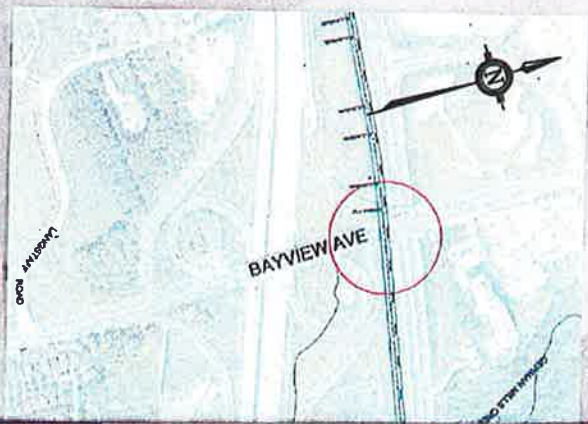
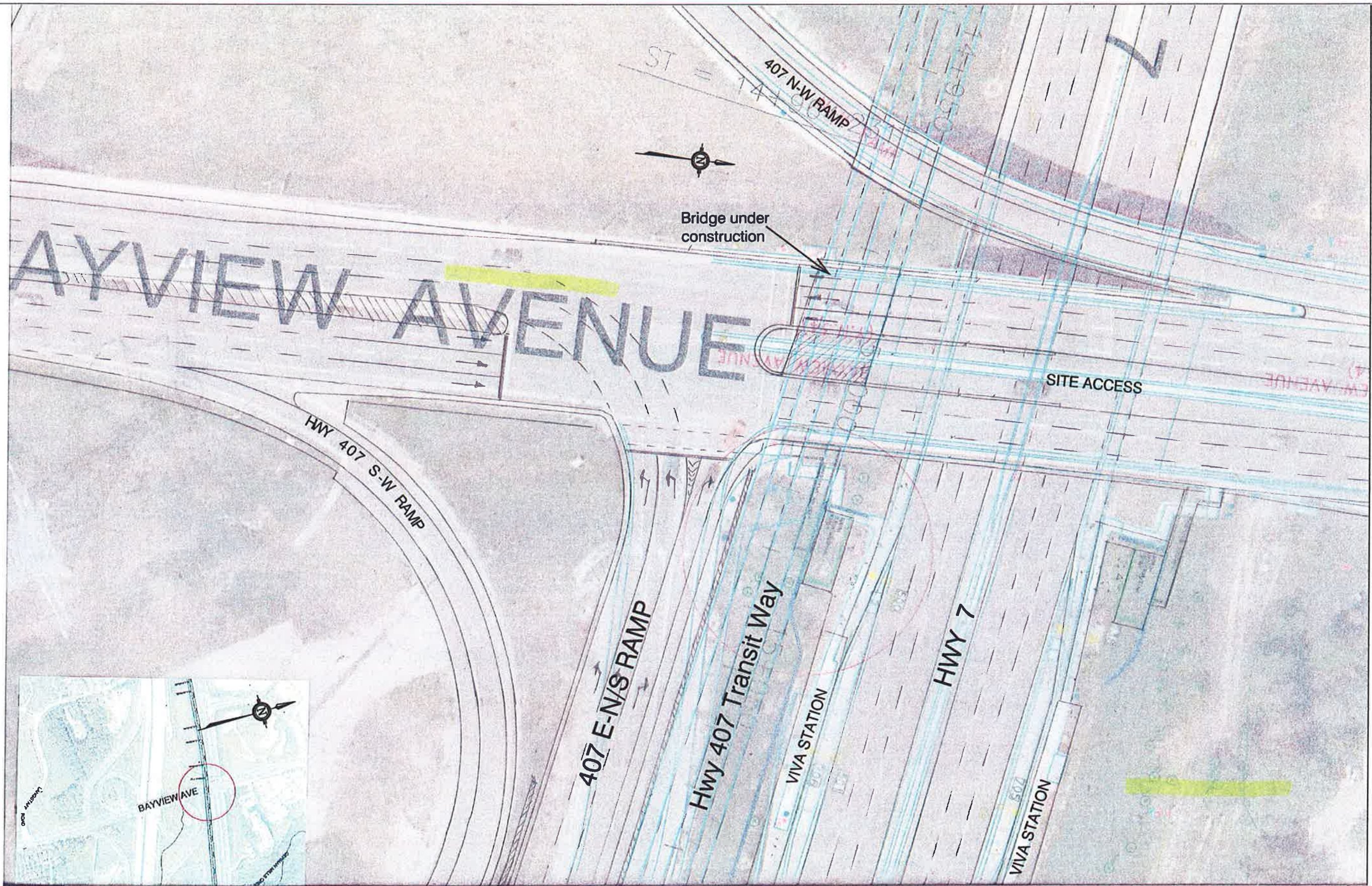
APPENDIX E

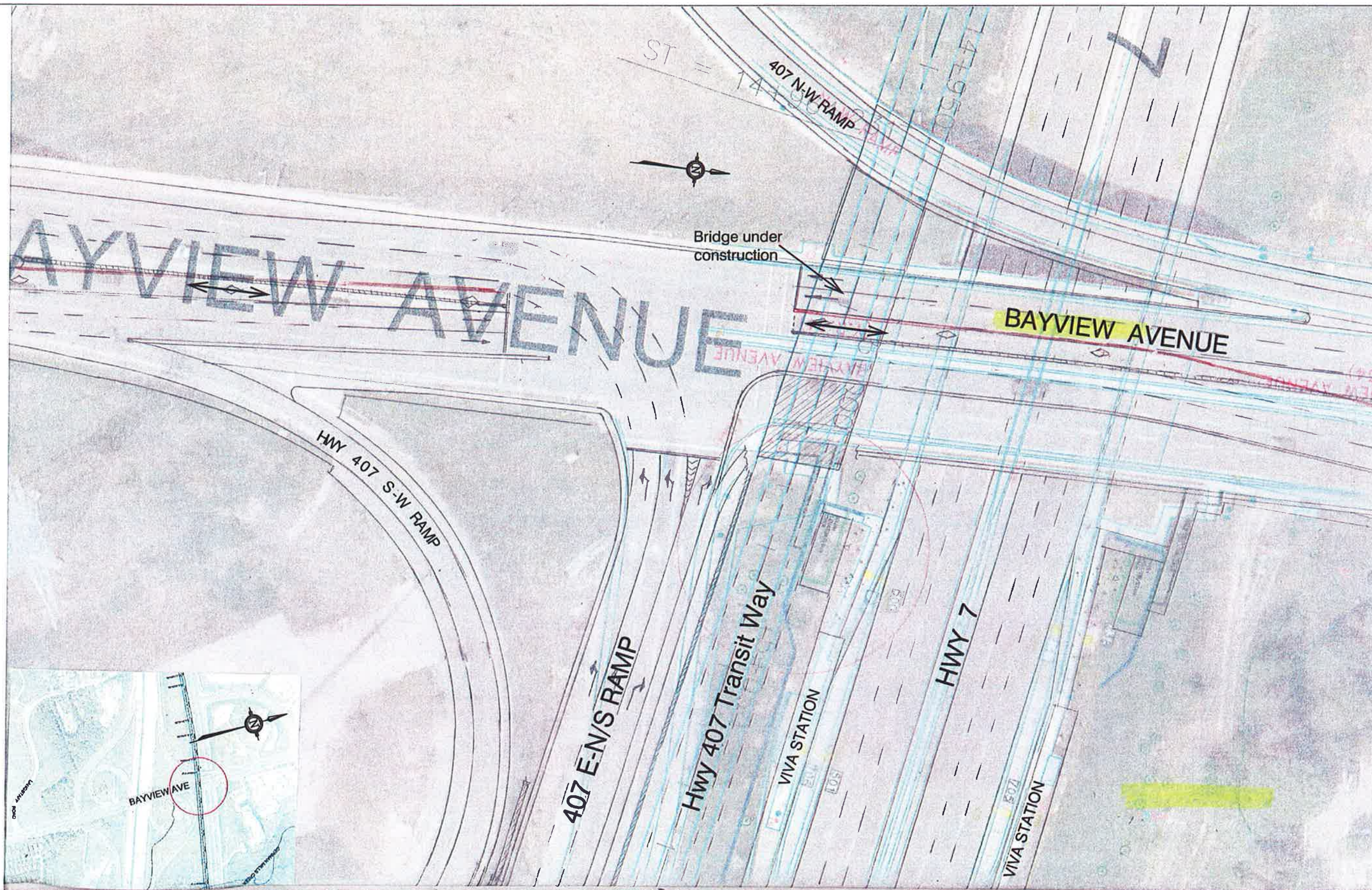
CONSTRUCTION STAGING PLANS: BAYVIEW AVENUE







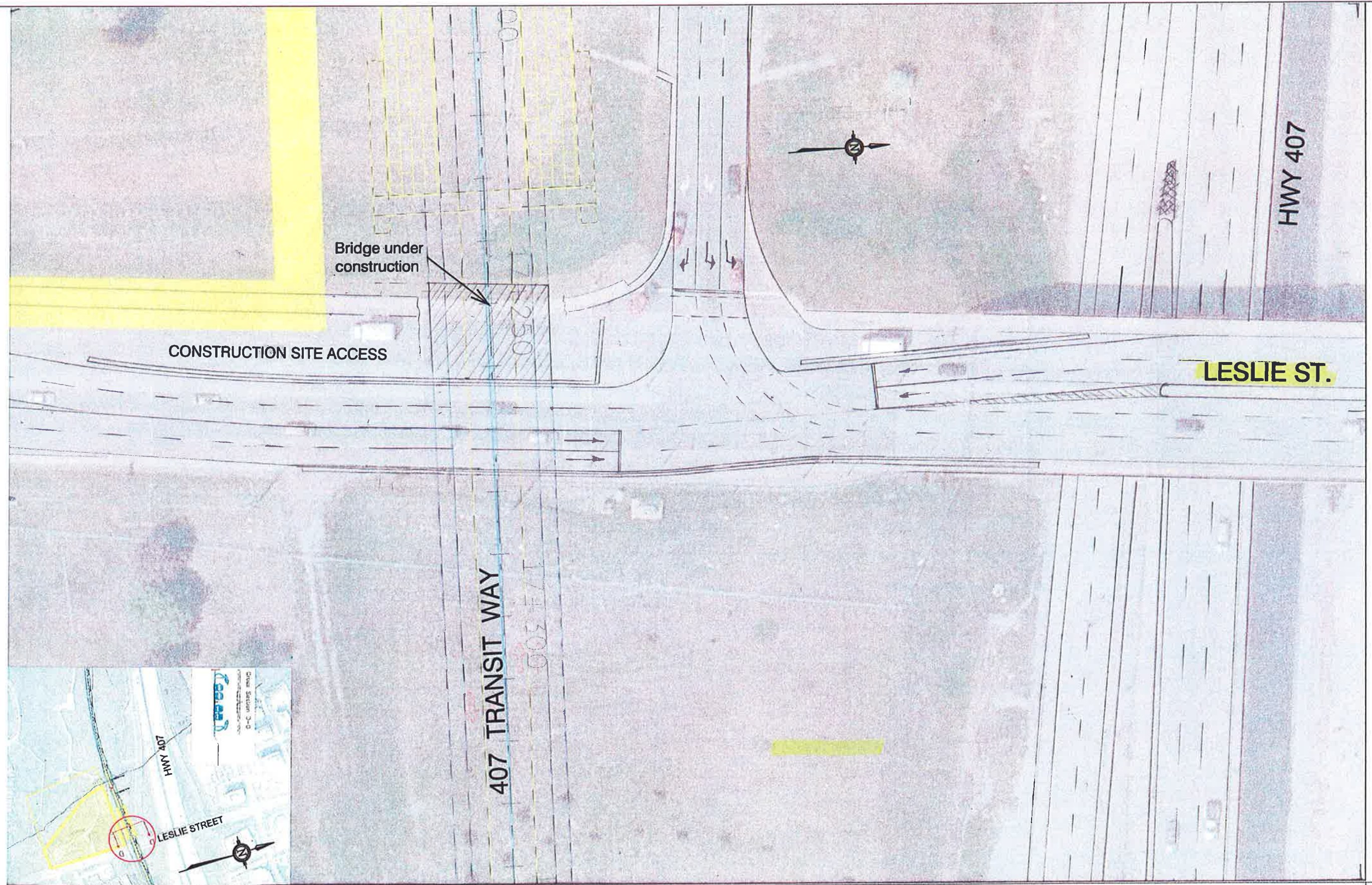




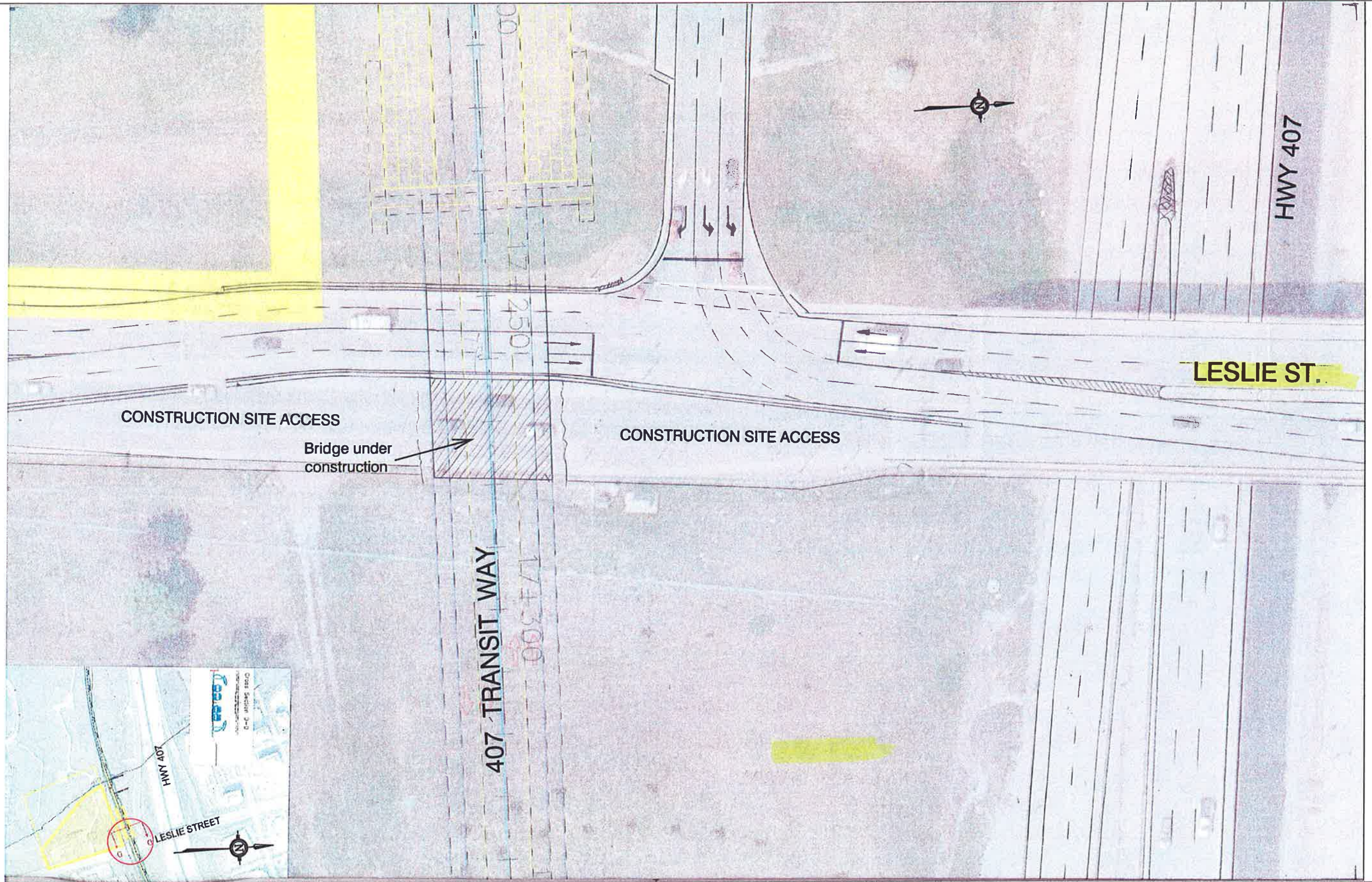
APPENDIX F

CONSTRUCTION STAGING PLANS: LESLIE STREET

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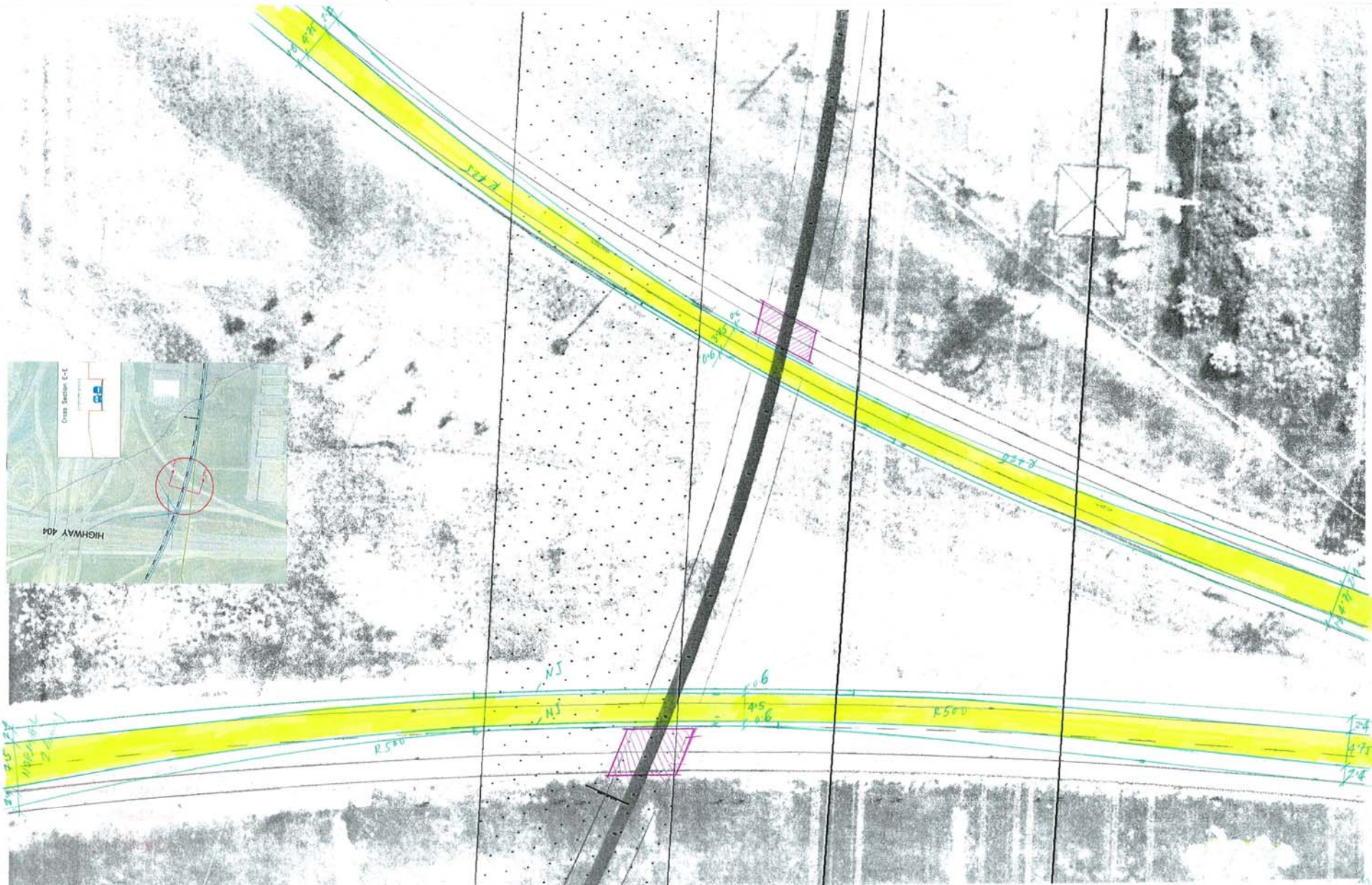


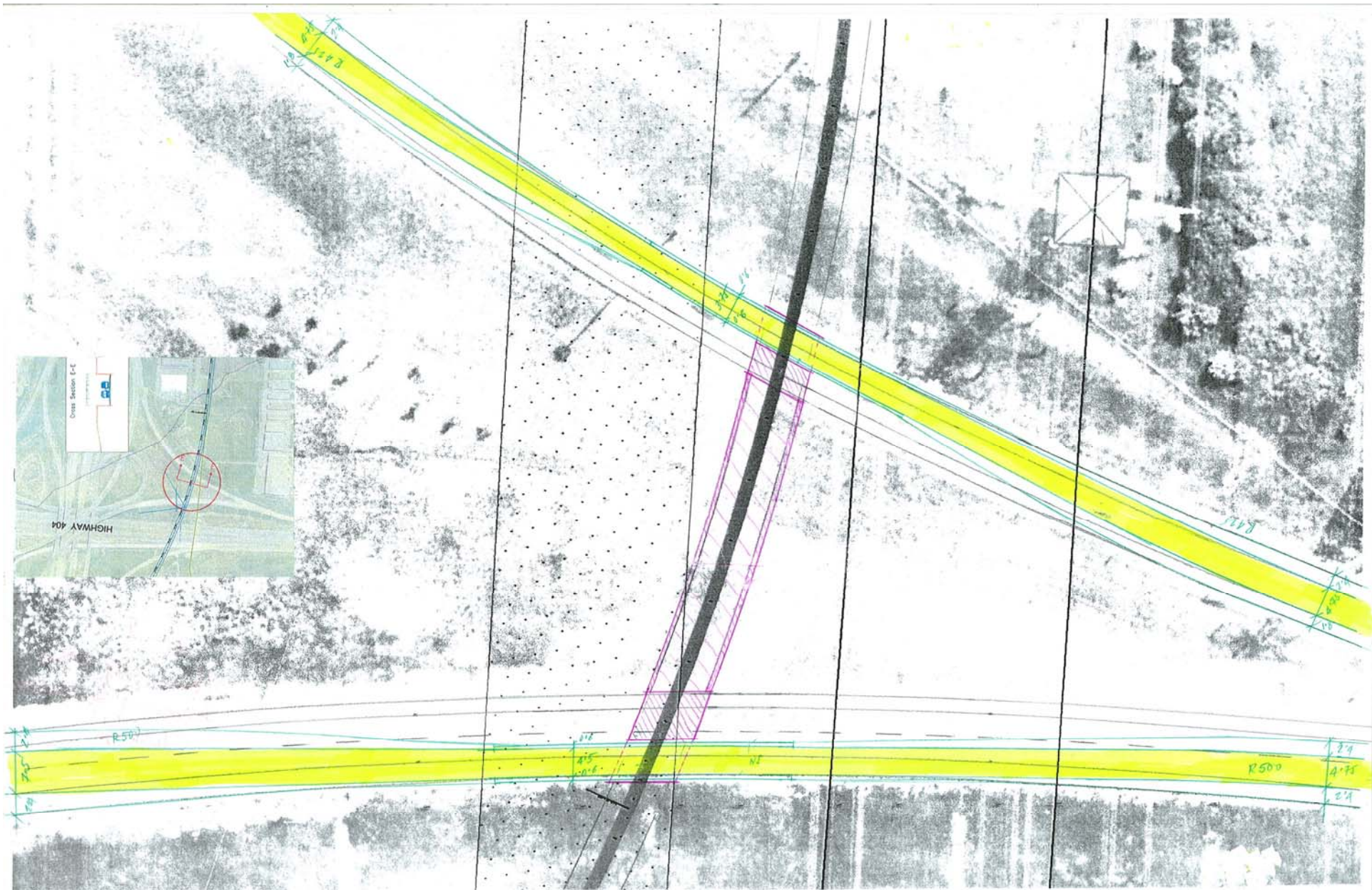
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APPENDIX G

CONSTRUCTION STAGING PLANS: HIGHWAY 404 NB 407 ETR OFF-RAMPS





APPENDIX H

CONSTRUCTION STAGING PLANS: RODICK ROAD

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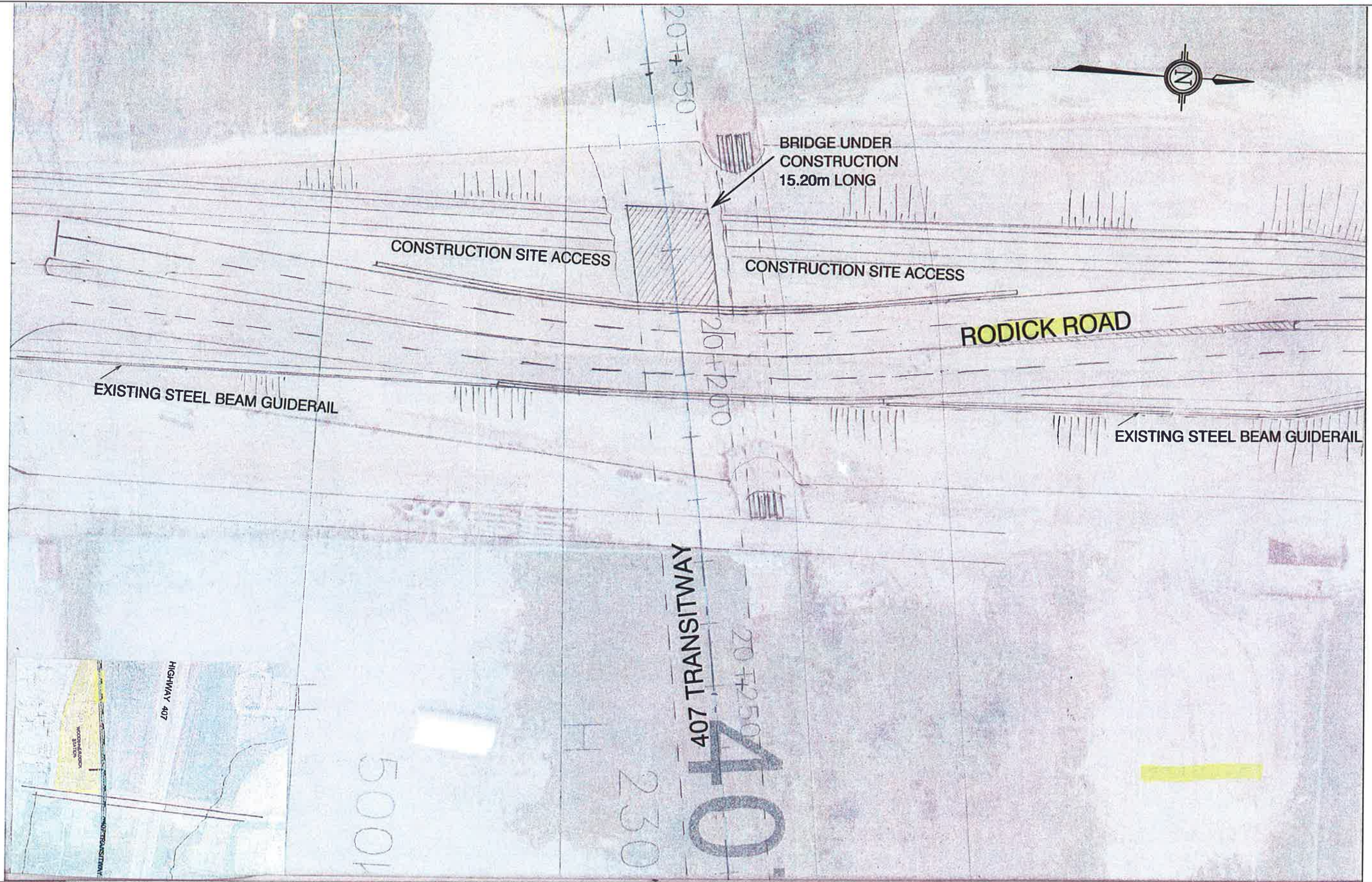


407 TRANSITWAY - GWP 252-96-00 PRELIMINARY DESIGN (60%)
407-RODICK RD. INTERCHANGE CROSSING
POTENTIAL CONSTRUCTION SEQUENCE (STAGE - 1)

FEB 2010

R-1

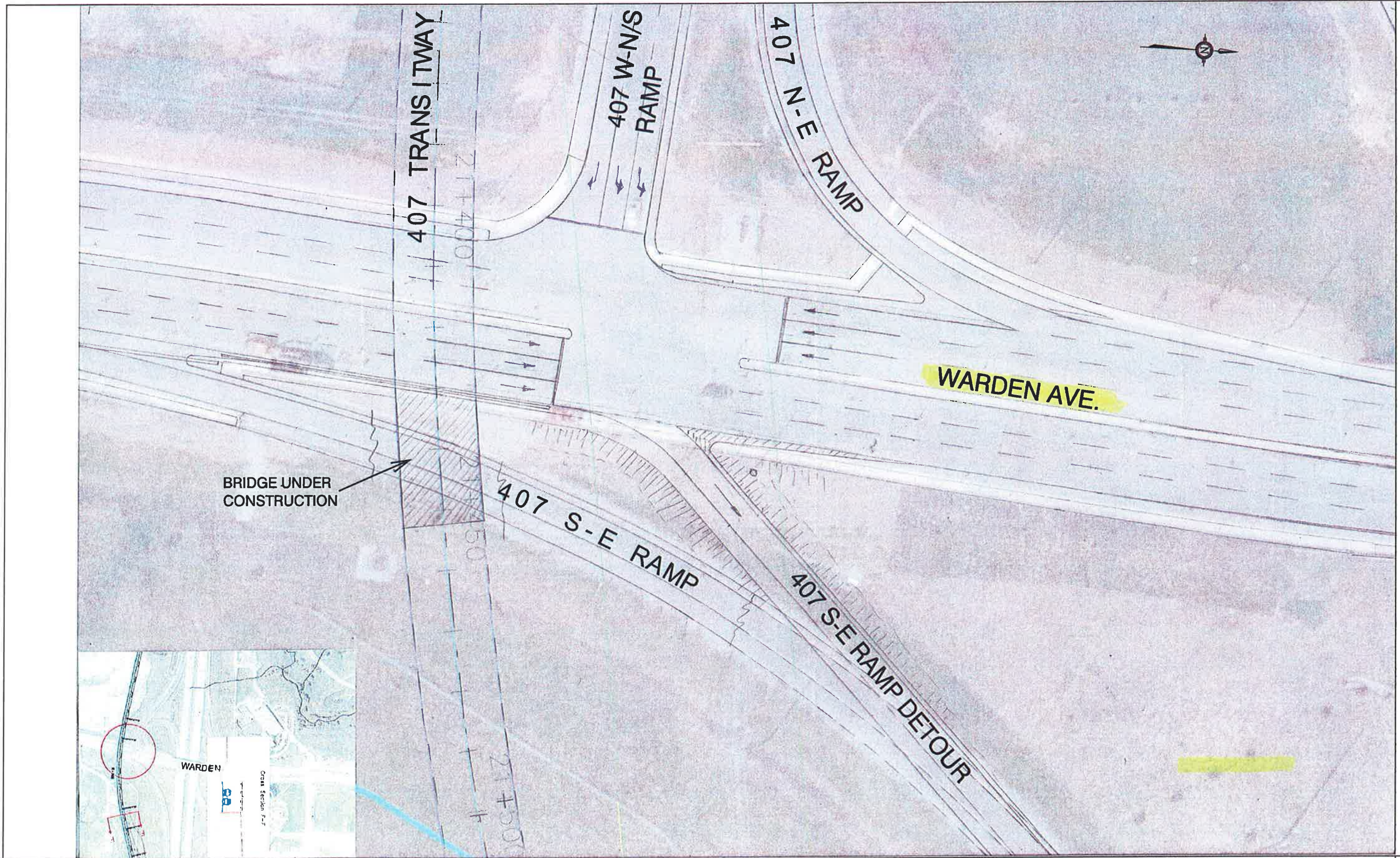
FIGURE



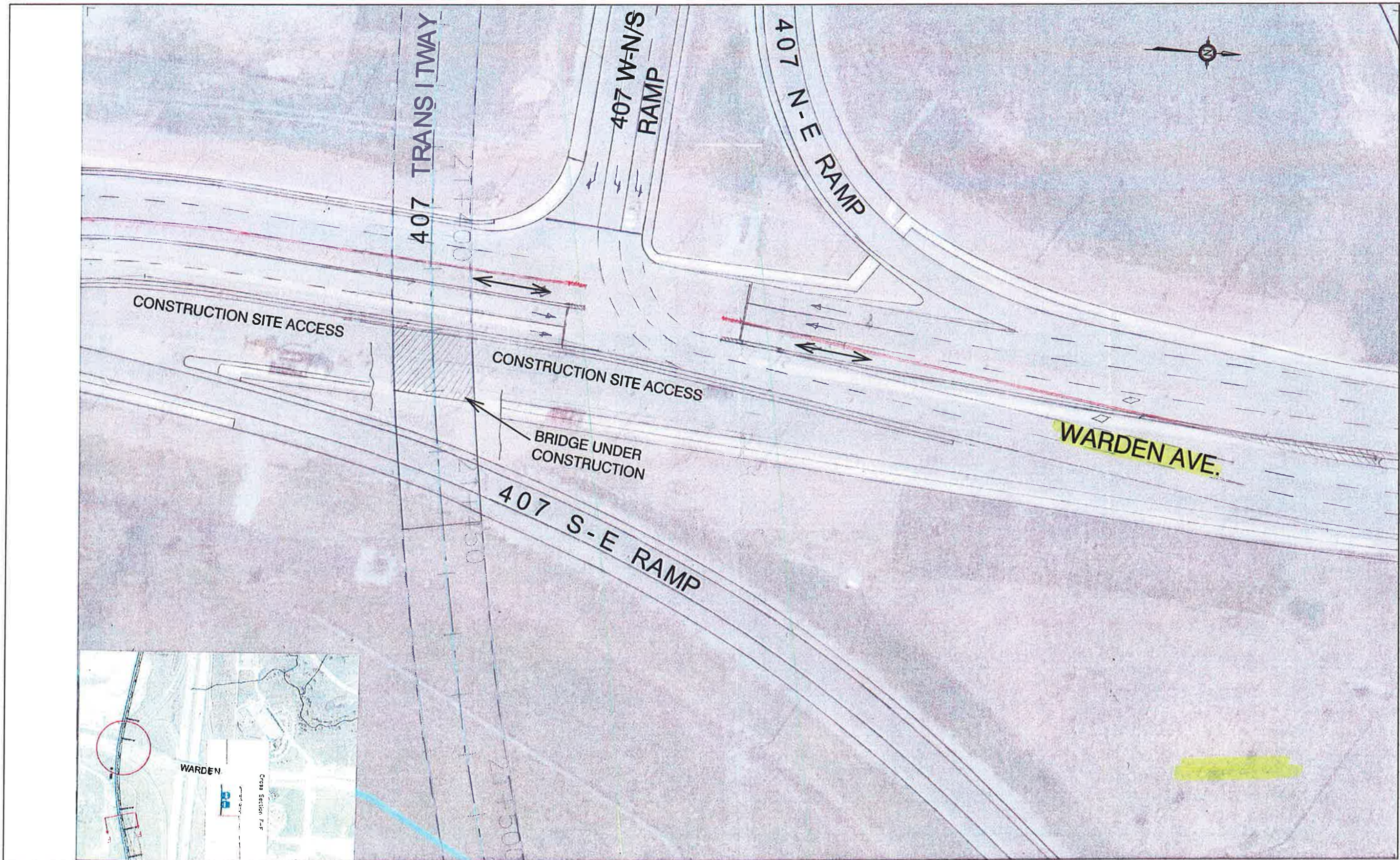
APPENDIX I

CONSTRUCTION STAGING PLANS: WARDEN AVENUE

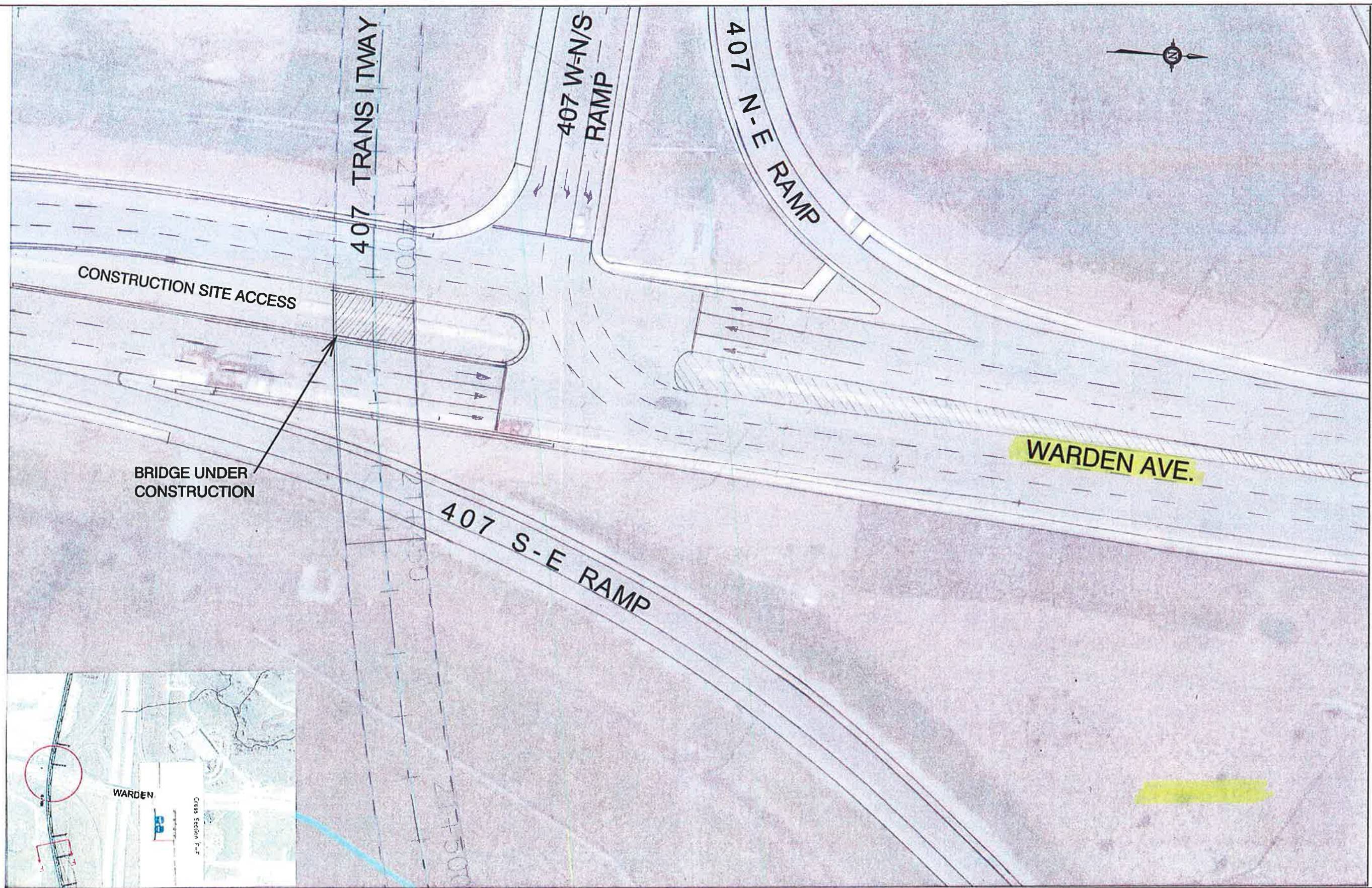
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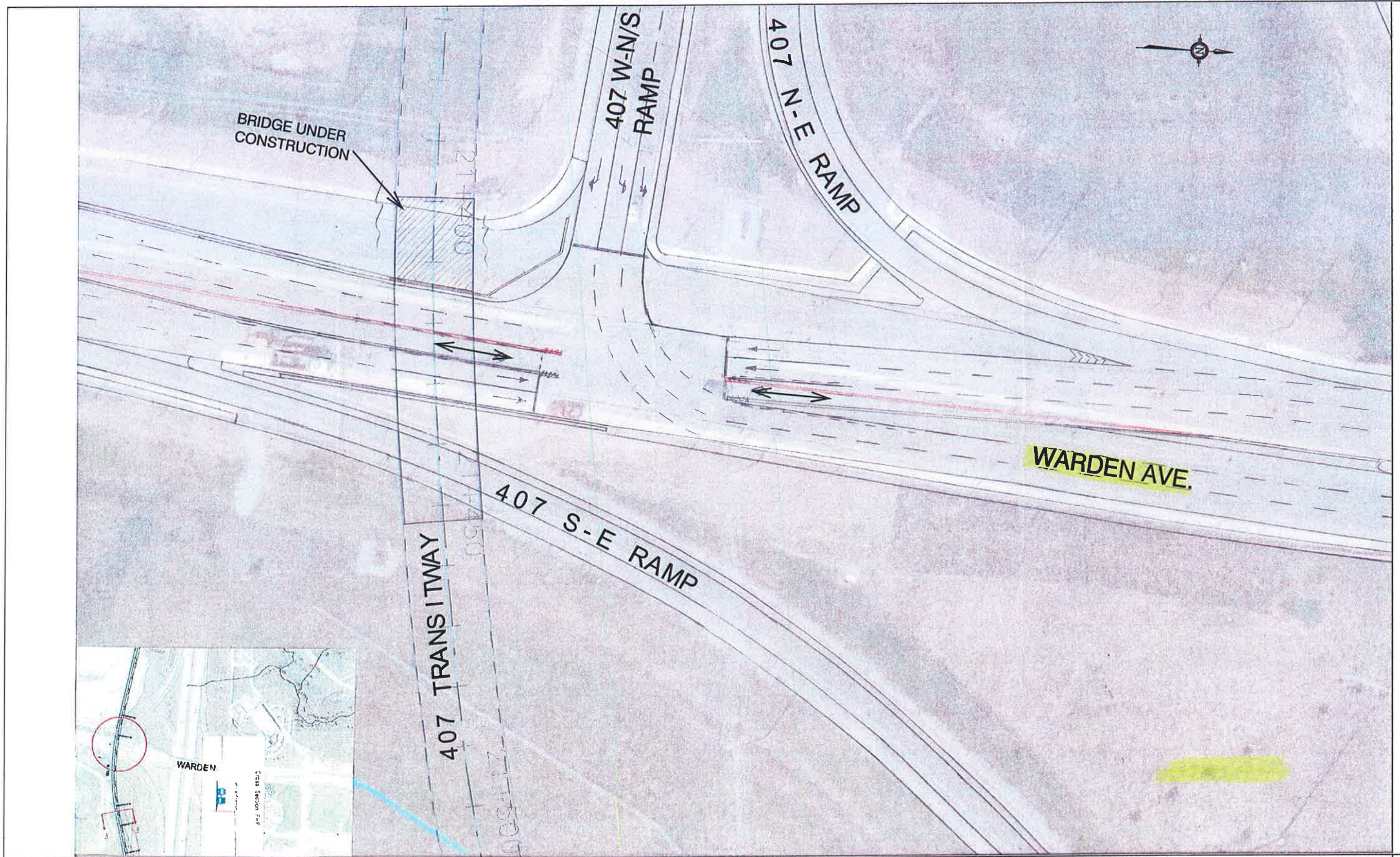
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407 TRANSITWAY - GWP 252-96-00 PRELIMINARY DESIGN (60%)
407-WARDEN AVE. INTERCHANGE CROSSING
POTENTIAL CONSTRUCTION SEQUENCE (STAGE - 4)

FEB 2010

W-4
FIGURE