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| TO: | CHAIR AND MEMBERS CIVIC WORKS COMMITTEE MEETING ON OCTOBER 28, 2013 |
| FROM: | EDWARD SOLDI, P.ENG. DIRECTOR, ROADS AND TRANSPORTATION |
| SUBJECT: | ADELAIDE STREET / CANADIAN PACIFIC RAILWAY GRADE SEPARATION |

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| RECOMMENDATION |
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That, on the recommendation of the Director, Roads and Transportation, the following actions **BE TAKEN** in respect to the Adelaide Street / Canadian Pacific Railway Grade Separation:

- a) The Adelaide Street / Canadian Pacific Railway crossing **BE CONFIRMED** as the City's highest priority new rail-road grade separation candidate site; and
- b) The Civic Administration **BE DIRECTED** to initiate the project environmental assessment subject to its inclusion and approval in the 2014 Development Charges and 2015 Capital Budget.

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| PREVIOUS REPORTS PERTINENT TO THIS MATTER |
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- Environment and Transportation Committee – November 28, 2005 – Priority Setting Factors for Future Rail / Road Grade Separations.

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| BACKGROUND |
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The purpose of this report is to provide updated road user delay information at the Adelaide Street / Canadian Pacific Railway (CPR) crossing and to confirm the priority of a Grade Separation project within London's transportation network.

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| DISCUSSION |
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In 2005, Council approved a prioritization of new road-rail grade separations for London. The evaluation process considered many factors including traffic delay, safety, emergency routes and social costs. Consideration of these factors established the highest priorities for grade separations as the Hale Street /Trafalgar Street / CN followed by Adelaide Street / CPR crossing. Other lower ranked crossings identified in the previous priority setting include the Clarke Road / CN and Egerton Street / CN crossings.

Construction of the Hale Street / Trafalgar Street / CNR grade separation was completed in 2011, after a lengthy project preparation process which included an environmental assessment (EA), design, property acquisition and application for and negotiation of cost sharing between senior levels of government and the railway company. The early completion of the project EA successfully positioned the project as "shovel-ready" when the Infrastructure Stimulus Funding (ISF) program was introduced. London only had to fund 1/6 of the project, excluding property costs, as a result of federal, provincial and railway contributions.

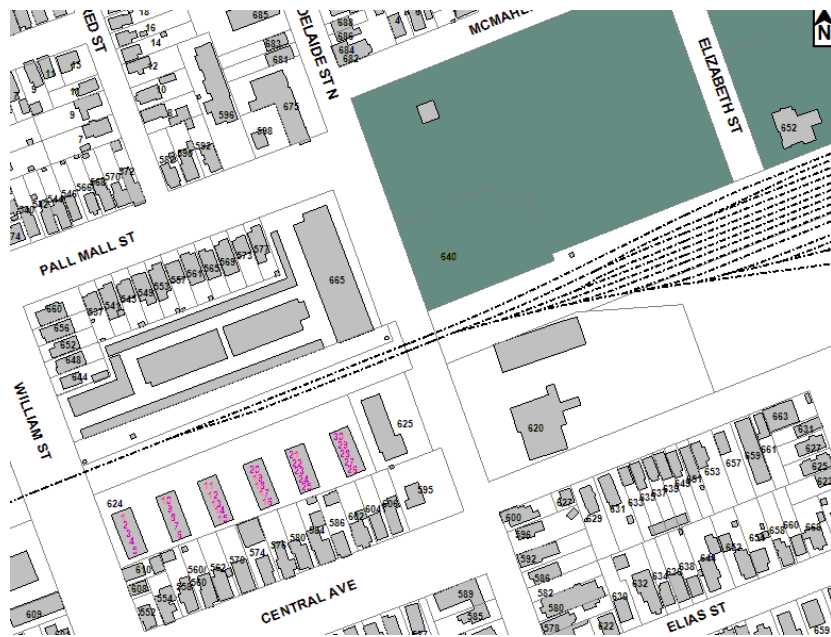
Recent road delay measurements confirm that, with the completion of the Hale Street / Trafalgar Street project, the Adelaide Street / CPR crossing is now the City's highest priority new grade separation site.

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Adelaide Street / CPR Crossing

Adelaide Street is a major four-lane north-south arterial road which carries an average of 32,000 vehicles per day at the CPR crossing. The CPR main line crossing comprises two tracks on the limit of the CPR rail yard that exists on the east side of Adelaide Street, north of Central Avenue as shown on Figure 1. The Smart Moves 2030 Transportation Master Plan identifies a need for traffic capacity optimization and transit priority on this corridor. Train crossing interruptions of the traffic flow on this important street occur at various times throughout the day, and the delays can be up to 10 to 12 minutes. The impact of a train movement at this crossing is the back up of southbound traffic well past Oxford Street and northbound traffic past King Street. These delays create cut-through traffic onto local streets in the area as drivers attempt to find alternate routes to their destinations.

Figure 1 - Adelaide Street / CPR Crossing Site



During the week of July 8th to 12th, 2013, the City completed a monitoring program at the CPR crossing of Adelaide Street. The monitoring program recorded the date, time and duration of any road closures due to train activities. The results are included in Appendix A. In summary, the monitoring observed 25 to 43 daily road blockages resulting in total road delays of 106 to 126 minutes per day. An average of 8 blockages per day extended for more than 5 minutes.

The 2005 prioritization considered the rail exposure index for the major rail crossings from the 2004 Transportation Master Plan. The exposure index is determined by multiplying the daily road traffic volumes and the rail train volumes. At the time, there were 12 level crossings in London that met the Transport Canada rail exposure index warrant for a grade separation, including the Adelaide Street / CPR crossing.

The recent detailed monitoring results indicate a greater grade separation warrant at this location than previously considered. A comparison to the 2004 Transportation Master Plan traffic volumes indicates that Adelaide Street traffic volumes have increased by more than 20% in the last decade. Additionally, the detailed blockage monitoring indicates a greater number of trains. This could be the result of increased rail through traffic or could be related to rail yard shunting. CPR creates more blockages of this particular crossing due to shunting movements as trains are assembled in the adjacent rail yard. This shunting does create longer delays as trains sometimes forward and reverse while Adelaide Street traffic is stopped.

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As per the Canadian Rail Operating Rules (TC O-0-93):

103. PUBLIC CROSSINGS AT GRADE

(d) Except at those public crossings indicated in special instruction, no part of a movement may be allowed to stand on any part of a public crossing at grade, for a longer period than five (5) minutes, when vehicular or pedestrian traffic requires passage. Switching operations at such crossing must not obstruct vehicular or pedestrian traffic for a longer period than five (5) minutes at a time. When emergency vehicles require passage, employees must cooperate to quickly clear the involved crossings.

While CPR has worked to reduce the impacts and delays of their operations at this crossing, there are significant impacts to traffic along Adelaide Street.

Grade Separation Project

The introduction of a grade separation at the Adelaide Street crossing of CPR would provide a continuous north – south route for traffic through central London that is not interrupted by any other level rail crossings and it will increase the efficiency of the road network for City commuters. The proposed grade separation would provide an additional crossing in central London for extended delay events due to rail operational failures or collisions. The closest grade-separated crossing of the CPR to the west is Talbot Street, 1.8 km away.

The 2005 evaluation determined that a grade separation is not possible at the Richmond Street crossing of CPR due to excessive social and economic costs.

A grade separation would also improve safety by eliminating rail conflicts. In particular, pedestrian safety is a concern because there are multiple tracks at this location.

This level crossing is a high priority for emergency services because it would provide an uninterrupted north-south corridor.

While a grade separation at this location would provide benefits for road users, it would come at some social cost. The area surrounding the crossing includes numerous residential and commercial properties that could experience considerable impacts. The project environmental assessment will develop and evaluate alternatives considering impacts to the social, cultural, natural, and economic environments and look to mitigate impacts.

Preliminary discussions have been held with CPR to advise of the City's intentions to initiate an EA for a grade separation at this location.

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| FINANCIAL |
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The cost of this project is estimated in the order of \$25 million. The proposed grade separation may be subject to some growth funding and those details are being reviewed as part of the 2014 Development Charges Background Study process. There are many competing needs in the proposed Growth program and the construction of this project is proposed to be scheduled near the end of the 20-year development charges window. However, the Environmental Assessment for the project can be scheduled in the nearer term to achieve EA approval, thereby positioning the project favourably for future infrastructure funding programs. The EA could be commenced in 2015 upon the completion of the 2014 Development Charges Background Study.

Cost sharing from CPR may also be available as identified through the Apportionment of Costs of Grade Separations guidance document published by the Canadian Transportation Agency. The completion of the EA would allow for these discussions to be undertaken.

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| CONCLUSION |
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The results of recent blockage monitoring at the Adelaide Street / CPR crossing confirms that the traffic delays at this location are significant, averaging 117 minutes per day. The findings confirm the grade separation warrant and a previous recommendation to prioritize this project. With the recent completion of the Hale Street / Trafalgar Street / CN Grade Separation, this is now London's top priority grade separation site.

This project is proposed to be included in the Transportation Growth program at a funding split to be determined by the Development Charges Background Study process. The Growth Program has many competing needs and construction timing is anticipated to be toward the end of the 20-year forecast. However, near-term completion of the project EA can position the project nearer to "shovel-ready" for any appropriate infrastructure funding opportunities. This project could be attractive to senior government funding, similar to the Hale Street / Trafalgar Street / CN Grade Separation.

Administration is proposing to include a 2015 budget item for the project environmental assessment after the completion of the Development Charges Background Study in 2014. With approval, a consultant will be retained to carry out an EA and preliminary design. The EA and preliminary design would develop and evaluate alternatives, define related property impacts, provide cost estimates, consult with the community and stakeholders and provide a recommended alternative for implementation.

Acknowledgements:

This report was prepared with assistance of Karl Grabowski, Transportation Design Engineer within the Transportation Planning and Design Division.

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| PREPARED BY: | RECOMMENDED BY: |
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| REVIEWED & CONCURRED BY: | |
| | |
| JOHN BRAAM, P.ENG. MANAGING DIRECTOR, ENVIRONMENTAL AND ENGINEERING SERVICES & CITY ENGINEER | |

cc: Li-Lian Lui, M.Eng. Specialist, Public Works, Canadian Pacific Railway

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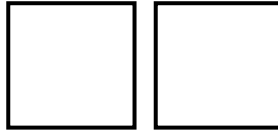
Appendix A

**SUMMARY
ADELAIDE STREET / CPR CROSSING DOWNTIME
JULY 8-12, 2013**

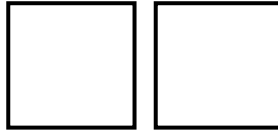
| Summary | | |
|--------------------------------------|-----------------------|----------|
| | Number of Occurrences | Downtime |
| Monday, July 8 (1/2 day) | 9 | 29 min |
| Tuesday, July 9 | 43 | 106 min |
| Wednesday, July 10 | 41 | 126 min |
| Thursday, July 11 | 25 | 125 min |
| Friday, July 12 (1/2 day) | 25 | 81 min |
| Daily Average | 36 | 117 min |

During the week of July 8 – 12th, 2013, the City of London carried out onsite monitoring at the Adelaide Street / CPR Crossing. Monitoring was initiated at 12:00 noon on Monday, July 8th and extended until Friday, July 12th at 12:00 noon.

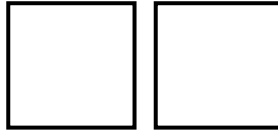
The following table details the actual monitoring with information on the date / time / duration for each road closure throughout the week. The monitoring observed 25 to 43 closures daily for nearly 2 hours (120 minutes) of duration. The monitoring period detected thirty two closures of 5 minutes or more.



| ADELAIDE STREET CPR CROSSING – DETAIL BLOCKAGES RECORD | | | | | | |
|---|--|--|--|--|--|--|
| July 8-12, 2013 | | | | | | |
| | Eastbound | | | Westbound | | |
| | Down | UP | Downtime | Down | Up | Downtime |
| July 8 | | | | | | |
| 12pm | 00:00 | 00:55 | 55 sec | 6:20 | 9:35 | 3 min 15 sec |
| 1pm | 05:23 | 06:00 | 37 sec (no train) | | | |
| 2pm | 04:54 | 09:43 | 5 min 49 sec | | | |
| 3pm | | | | 08:00 19:43 | 12:30 20:43 | 4 min 30 sec 1 min |
| 4pm | | | | | | |
| 5pm | 45:10 | 52:50 | 7 min 40 sec | | | |
| 6pm | | | | | | |
| 7pm | | | | | | |
| 8pm | | | | | | |
| 9pm | | | | | | |
| 10pm | 59:45 | 59:59 | 14 sec (no train) | | | |
| 11pm | 00:00 03:06 | 01:26 07:15 | 1 min 26 sec (no train) 4 min 9 sec | | | |
| July 9 | | | | | | |
| 12am | 01:01 | 01:42 | 41 sec | 00:00 12:17 | 01:01 14:39 | 1 min 01 sec 2 min 22 sec |
| 1am | | | | | | |
| 2am | | | | | | |
| 3am | | | | | | |
| 4am | 57:35 | 59:59 | 2 min 25 sec | | | |
| 5am | 00:00 | 07:05 | 7 min 5 sec | | | |
| 6am | | | | | | |
| 7am | | | | | | |
| 8am | | | | | | |
| 9am | | | | | | |
| 10am | | | | 22:00 | 25:18 | 3 min 18 sec |
| 11am | 06:42 | 07:05 | 23 sec (no train) | | | |
| 12pm | 41:58 | 45:05 | 3 min 7 sec | | | |
| 1pm | 16:22 19:34 56:32 | 17:25 21:55 59:59 | 1 min 3 sec (no train) 2 min 19 sec 2 min 27 sec | 21:55 | 24:27 | 2 min 32 sec |
| 2pm | 00:00 13:10 37:47 | 01:39 13:50 39:08 | 1 min 39 sec 40 sec (no train) 1 min 21 sec | 18:01 36:05 | 24:00 37:47 | 5 min 59 sec 1 min 42 sec |
| 3pm | 12:01 | 17:01 | 5 min | 08:55 24:45 26:17 | 12:00 26:05(no train) 30:47 | 3 min 5 sec 4 min 30 sec |
| 4pm | 35:45 47:46 | 36:45 49:38 | 1 min (no train) 1 min 52 sec | 44:03 55:52 | 45:18 57:35 | 1 min 15 sec 1 min 43 sec |
| 5pm | 00:45 | 01:39 | 54 sec | 08:08 | 13:08 | 5 min |
| 6pm | | | | | | |
| 7pm | 04:41 09:32 27:01 37:34 48:26 57:48 | 06:49 10:42 27:32 38:42 50:05 59:11 | 2 min 8 sec 1 min (no train) 31 sec 1 min 8 sec 1 min 39 sec 3 min 19 sec | 02:17 17:20 26:05 36:20 45:51 54:57 | 04:40 22:04 27:00 37:33 48:25 57:47 | 2 min 23 sec 4 min 44 sec 55 sec 1 min 13 sec 2 min 34 sec 2 min 50 sec |



| ADELAIDE STREET CPR CROSSING – DETAIL BLOCKAGES RECORD | | | | | | |
|---|----------------------------------|----------------------------------|--|----------------------------------|----------------------------------|---|
| July 8-12, 2013 | | | | | | |
| | Eastbound | | | Westbound | | |
| | Down | UP | Downtime | Down | Up | Downtime |
| 8pm | 15:42 | 16:39 | 57 sec | 05:07 14:41 29:04 | 09:31 15:41 37:45 | 4 min 24 sec 1 min 8 min 41 sec |
| 9pm | | | | | | |
| 10pm | 08:49 | 11:34 | 2 min 45 sec | | | |
| 11pm | | | | | | |
| July 10 | | | | | | |
| 12am | 24:43 | 34:58 | 10 min 15 sec | | | |
| 1am | | | | | | |
| 2am | 03:17 31:18 43:27 50:01 | 07:03 32:29 47:30 53:39 | 3 min 46 sec 1 min 11 sec (no train) 7 min 3 sec 3 min 38 sec | 39:26 47:31 | 43:26 49:13 | 4 min 1 min 42 sec |
| 3am | 01:42 | 02:56 | 1 min 14 sec (no train) | 19:01 | 24:01 | 5 min |
| 4am | 27:58 53:13 | 29:44 53:49 | 1 min 46 sec 36 sec | 24:44 47:03 52:12 | 27:57 48:10 53:12 | 3 min 13 sec 1 min 7 sec 1 min |
| 5am | 07:18 25:43 | 10:33 28:01 | 3 min 15 sec 2 min 18 sec | 21:56 42:23 | 25:42 47:23 | 3 min 46 sec 5 min |
| 6am | | | | | | |
| 7am | 20:15 | 20:44 | 30 sec | 19:34 | 20:14 | 1 min 40 sec |
| 8am | | | | | | |
| 9am | | | | | | |
| 10am | | | | 05:41 | 08:16 | 2 min 36 sec |
| 11am | 46:02 56:58 | 51:14 60:00 | 5 min 12 sec 3 min 2 sec | | | |
| 12pm | 00:00 | 00:40 | 40 sec | | | |
| 1pm | 39:08 | 42:31 | 3 min 23 sec | | | |
| 2pm | | | | | | |
| 3pm | | | | | | |
| 4pm | 07:03 14:19 | 07:31 20:53 | 28 sec (no train) 6 min 34 sec | | | |
| 5pm | | | | 24:50 | 31:10 | 6 min 20 sec |
| 6pm | 18:47 35:01 | 24:00 36:05 | 5 min 13 sec 1 min 4 sec (no train) | | | |
| 7pm | 03:30 | 06:57 | 3 min 27 sec | 08:28 | 13:57 | 5 min 29 sec |
| 8pm | | | | | | |
| 9pm | 17:34 | 20:27 | 2 min 53 sec | 15:33 | 17:33 | 2 min |
| 10pm | 23:26 28:05 36:12 | 24:11 28:40 38:33 | 45 sec 35 sec 2 min 21 sec | 21:25 26:31 32:05 52:16 | 23:35 28:04 36:11 57:01 | 2 min 10 sec 1 min 33 sec 4 min 6 sec 4 min 45 sec |
| 11pm | | | | | | |
| July 11 | | | | | | |
| 12am | | | | | | |
| 1am | | | | | | |
| 2am | | | | | | |
| 3am | 26:57 | 35:38 | 8 min 41 sec | 19:19 46:15 | 26:57 52:24 | 7 min 38 sec 6 min 9 sec |



| ADELAIDE STREET CPR CROSSING – DETAIL BLOCKAGES RECORD | | | | | | |
|---|----------------------------------|----------------------------------|---|----------------------------------|----------------------------------|---|
| July 8-12, 2013 | | | | | | |
| | Eastbound | | | Westbound | | |
| | Down | UP | Downtime | Down | Up | Downtime |
| 4am | 19:28 | 21:54 | | | | |
| 5am | | | | | | |
| 6am | | | | | | |
| 7am | | | | | | |
| 8am | 23:02 | 25:39 | 2 min 37 sec | 33:09 | 39:23 | 6 min 14 sec |
| 9am | | | | | | |
| 10am | 04:16 14:06 | 04:55 14:35 | 39 sec | 03:03 13:17 33:40 | 04:15 14:06 40:21 | 1 min 12 sec 49 sec 6 min 41 sec |
| 11am | 45:10 | 52:00 | 6 min 50 sec | | | |
| 12pm | | | | 55:08 | 59:24 | 4 min 16 sec |
| 1pm | | | | | | |
| 2pm | 09:58 35:37 | 14:14 44:41 | 4 min 16 sec 9 min 4 sec | | | |
| 3pm | | | | | | |
| 4pm | 03:34 21:50 | 04:13 29:57 | 39 sec (no train) 8 min 7 sec | 47:05 | 59:28 | 12 min 23 sec |
| 5pm | | | | 12:09 | 18:23 | 6 min 14 sec |
| 6pm | | | | | | |
| 7pm | 43:18 | 45:20 | 2 min 2 sec | 30:51 40:09 | 32:36 43:17 | 1 min 45 sec 3 min 8 sec |
| 8pm | 23:19 | 30:49 | 7 min 30 sec | 35:30 | 40:22 | 4 min 52 sec |
| 9pm | 57:07 | 59:59 | 2 min 52 sec | | | |
| 10pm | 00:00 | 10:52 | 10 min 52 sec | | | |
| 11pm | 01:52 | 02:52 | 1 min (no train) | | | |
| July 12 | | | | | | |
| 12am | | | | | | |
| 1am | | | | | | |
| 2am | 12:24 32:43 | 14:21 42:19 | 1 min 57 sec 9 min 3 sec | 05:40 30:16 56:41 | 12:24 32:43 59:59 | 6 min 44 sec 2 min 27 sec 2 min 8 sec |
| 3am | | | | 00:00 | 01:24 | 1 min 24 sec |
| 4am | 01:52 08:12 | 02:55 13:02 | 1 min 3 sec (no train) 4 min 50 sec | 17:02 | 21:05 | 4 min 3 sec |
| 5am | 41:38 | 44:56 | | 31:08 58:47 | 34:36 59:59 | 3 min 28 sec 1 min 12 sec |
| 6am | 00:00 14:59 34:02 | 00:59 16:49 40:28 | 59 sec 1 min 50 sec 6 min 26 sec | 12:00 | 14:59 | 4 min 59 sec |
| 7am | | | | | | |
| 8am | | | | | | |
| 9am | | | | | | |
| 10am | 07:37 13:42 21:27 36:16 | 12:01 15:49 25:10 36:52 | 4 min 24 sec 2 min 7 sec 3 min 43 sec 36 sec | 03:37 12:01 34:46 54:24 | 07:37 13:42 36:16 59:59 | 4 min 1 min 41 sec 1 min 30 sec 5 min 35 sec |
| 11am | 31:59 | 36:39 | 4 min 20 sec | 00:00 | 01:39 | 1 min 39 sec |