

# Owners Investigation Report

## Incident Follow Up Report

Project 12366-2012 - Hwy 1 Climbing Lane 232<sup>nd</sup> St – 264<sup>th</sup> St.

Report Initiated - October 23, 2013 and Concluded November 22, 2013

## Scope

The Ministry of Transportation and Infrastructure initiated an Owners investigation upon the occurrence of a serious incident, which occurred on a Prime Contractor project, located on Hwy 1 in Langley. The intent of this report is to review relevant information, and events, to determine if there are any opportunities for improvement.

The scope of the investigation was to review Ministry documents and processes to identify whether the Ministry met its obligations, as an Owner, as well as provide any recommendations for continual improvement regarding policy and processes. To assist with understanding this process the following information has been reviewed:

- The contract for project 12366-2012.
- The Standard Specifications for Highway Construction – Sections 135-Site Safety, 145-General Requirements and 194-Traffic Management.
- The Traffic Control Manual for Work on Roadways.
- Review of project site safety and traffic management materials.
- Section 118 & 119 of the Workers Compensation Act.
- Discussions with the parties involved.

## Executive Summary

It appears that the Ministry was unaware of the Prime Contractor in engaging additional work both the night of Oct 18<sup>th</sup> and 21<sup>st</sup>, 2013, and of the traffic control processes which were applied. The findings of this investigation identified that the Ministry followed all processes and requirements in relation to the administration of contracted works.



## Information Collection

Information was collected by reviewing various documented records, and through conversations with those involved with the administration of the project. Personnel providing information for the investigation were:

Udo Sommer – Ministry Representative, Field Services, Ministry of Transportation  
Nick Dhaliwal – Assistant Ministry Representative, Field Services, Ministry of Transportation.  
John McKenzie – Manager, Field Services, Grading, Ministry of Transportation  
Brian Atkins – District Manager, South Coast District, Ministry of Transportation  
Virginia Dragan – Project Management Technician, Ministry of Transportation  
Regional Traffic Management Centre, Ministry of Transportation  
Darren Ell – General Manager, Mainroad Contracting, Ministry of Transportation  
Katherine Pelletier – Safety Coordinator – through Jakes Construction's investigation

## Overview

The Ministry of Transportation and Infrastructure tendered a project which would result in the addition of a truck climbing lane, between 232<sup>nd</sup> St and 264<sup>th</sup>, on Hwy 1. The intent of the new lane is to reduce traffic congestion, east bound, through this stretch. The contract was tendered in the fall of 2012 and Jakes Contracting was the successful bidder for the work and was designated as Prime contractor. The project would involve removing vegetation and trees from the median, the addition of a truck climbing lane, demolition and replacement of the 248<sup>th</sup> overpass and all associated site safety and traffic management responsibilities. Jakes Construction has been working in this area since early 2013 and has successfully managed traffic through the implementation of lane closures and median cross-overs. Any concerns brought to the attention of the Prime have been taken seriously and quickly rectified.

Jakes Construction agreed to take on additional work, which was not within the original project tender but related to the final completion of work in this area. The additional work included the installation of stimsonite reflectors on the lines delineating the slow and fast lanes. It was agreed that this work would be assigned under a work order.

## Incident

In the early morning hours of Oct. 22, 2013 the Ministry of Transportation was advised of a motor vehicle incident which involved two vehicles in the east bound fast lane, just west of the 264<sup>th</sup> St overpass. The area was experiencing limited visibility and conditions were posted as "Dense Fog" on Drive BC and the highway overhead signs, along this route. Estimated visibility distance was approximately 400m. The Prime Contractor was working at installing stimsonites (reflectors) on the recently painted road. The Ministry was not aware that Jakes Construction had commenced this work in the overnight hours of Oct. 21 or the previous Friday, Oct. 18, 2013.

On the morning of Oct. 22 it was reported by the onsite workers to Ministry personnel that a work truck with a shadow vehicle was installing stimsonites in the fast lane with both arrow boards pointing right and other warning lights turned on. When approaching the 264<sup>th</sup> St exit, one of the workers noticed that some temporary pavement markings hadn't been removed from the slow lane, during the previous eradication work, and crossed the highway to do so. The operator of the shadow vehicle was concerned about the safety of this individual, and left the position behind the Work truck to provide a protective barrier to the slow lane worker, who was on foot. This vehicle had the arrow board switched to "bar" mode in the slow lane. The worker driving the Jakes work truck exited the vehicle to find out what had happened to his shadow vehicle, leaving his vehicle stopped in the fast lane. This vehicle was subsequently hit by another vehicle driven by a member of the public.

Upon notification of the incident, Ministry personnel responded to the scene. The Highway had been closed to traffic by the RCMP, to conduct their investigation, for what was being reported as a fatality involving a member of the public. Upon responding to the scene Ministry personnel recorded the advance warning signage and vehicle locations and obtained statements from the onsite workers.

It was at this time the Ministry was advised that a "rolling closure" methodology was being used to control traffic, which was the same application used on Oct. 18<sup>th</sup>, 2013. It was understood that two shadow vehicles had been used on Oct. 18<sup>th</sup> however only one was evident on the morning of Oct. 22, 2013. Upon review of the signage Ministry personnel confirmed that the advanced warning signage with speed drops was a significant distance away, between the 232<sup>nd</sup> and 248<sup>th</sup> St. overpasses. Lane drops signs were noticed approximately 5.1 kms west of the incident, as measured by the RCMP. No barrels, tubular delineators or other devices indicating a lane closure were found within the vicinity of the work vehicles.

## Event Timeline:

*This section is based upon information provided to by the various project and Ministry personnel and reflects events relevant to the incident and subsequent investigation.*

Date	Event & Nature
January 8, 2013	Project awarded – Prime Contractor designated
January 18, 2013	Preconstruction meeting occurs, Hazard ID shared and significant discussion regarding traffic management ensues.

### ***Event Timeline con't***

Date	Event & Nature
February 5, 2013	Traffic Management Plan acceptance noted in Construction Meeting Minutes No. 1. The first of 19 formal meetings throughout the duration of the project.
February 21, 2013	Site Safety Plan accepted following revision requests from the Ministry.
March 15, 2013	Quality Control workshop presented to Jakes Construction including requirements for traffic control.
May 16, 2013	Ministry representative advises Jakes Construction of WorkSafeBC focus on traffic control.
August 23, 2013	Extended lane closure permit to October 31 issued.
October 1, 2013	Safety Audit conducted, including a review of traffic management. Results successful.
October 8, 2013	Ministry identifies additional items potentially forthcoming to be covered by work order, which included stimsonite installation. Quotes requested.
October 18, 2013	Jakes installs stimsonites during night work. Ministry was not aware of work taking place. No quotes received for additional works.

### **Event Timeline con't**

Date	Event & Nature
October 21-22, 2013	The RTMC had posted Dense Fog, on Highway Overhead signs, along Hwy 1.
October 22, 2013	Incident date - Ministry unaware of the night work and the stimsonites being installed.
October 22	The Ministry issues Jakes Contracting with a Stop Work Order for the Hwy 1 works until such time the Prime can present an updated Traffic Management Plan which identifies adequate traffic control measures ensuring worker and public safety.
October 23	The Ministry issues NCR for inadequate traffic control practices and not following various Standard Specifications and their accepted Traffic Management Plan.
October 24	Jakes Construction asks for clarification regarding the Stop Work Order. The Ministry responds with further clarification.
October 25, 2013	Jakes Construction acknowledges the clarification.

### **Discussion & Findings**

1. The Ministry provided any necessary information and regularly provided feedback to the Prime Contractor regarding safety and traffic.
  - i. Preconstruction meeting – safety and traffic management discussed. Site hazards discussed. – January 18, 2013
  - ii. Successful safety audit completed on October 1, 2013
  - iii. Traffic and safety concerns discussed during regular construction meetings (19 in total) from February 5, 2013 through October 8, 2013. All concerns were followed up in a timely manner.

2. The Ministry of Transportation had obtained and reviewed various submissions from the Prime Contractor.
  - i. Site specific safety plan – Reviewed and comments provided. The Prime updated and resubmitted the plan to meet contractual and WSBC requirements.
  - ii. Traffic Management Plan – Developed for Jakes Construction by Inprotect Systems. Ministry provided review comments and changes were made by Inprotect. Ministry confirmed acceptance of the stamped plan on February 5, 2013.
3. The Ministry of Transportation and Infrastructure added the installation of stimsonites as an additional work order.
  - i. The Project Manager advised Jakes Construction of the opportunity to perform this work at the regular construction meeting on October 8, 2013, and a quote for the work was requested.
  - ii. The additional work would be able to be completed under the accepted traffic management plan, and previously used lane closure applications.
  - iii. In an e-mail exchange on October 18<sup>th</sup>, between Jakes and the Min. Rep., hydroseeding and stimsonite work was discussed. Hydroseeding work approved at this time however the stimsonite work was not approved, as no quote for the work had been received. Appears there may have been a misunderstanding.
4. The Ministry was not advised by the contractor that the stimsonite work was commencing.
  - i. No quote for the additional work was received prior to work on Oct. 18<sup>th</sup> or 21<sup>st</sup>.
  - ii. The Ministry Representative was not clearly informed, verbally or in writing, of the intention to complete the work in the overnight hours of Oct. 18<sup>th</sup> or 21<sup>st</sup>.
  - iii. The Regional Traffic Management Centre was not advised of work commencing on the project overnight on Oct. 18<sup>th</sup> and 21<sup>st</sup>.
5. Evidence suggests, the Prime Contractor engaged a non-typical traffic control practice for this type of work, and did not provide sufficient advance warning.
  - i. Discussion on site, with workers, indicated that a rolling closure traffic control application was used, which is not in the TCM nor was it approved for this work. Workers had previously used a “rolling closure” for hydroseeding work which is shoulder work, and has little or no impact to travel lanes. In the TCM this would be continuously slow moving work.
  - ii. Initial onsite review indicates that there was a lack of appropriate advanced warning signage. CMS boards and speed reader boards were removed and returned to the rental outlet. Speed signs remained and were posted several kilometres in advance of the work zone.
  - iii. Lane drops, in advance of the work area, were not effectively initiated using lane tapers with drums or delineators.

6. Public reports suggested that the Maintenance Contractor and RCMP were aware or notified of the unsafe conditions on the Highway.
  - i. The Maintenance Contractor confirmed they had spoken to all of their night shift personnel and none had travelled through this area.
  - ii. RCMP has confirmed that a 911 call was made at 11:12 PM on October 21<sup>st</sup> and the call was transferred to the Abbotsford Police, however no police investigation of the site occurred prior to the incident.

## Determination

The Ministry followed its contracting administration protocols, in regards to this contract, and its duties as an Owner under Section 118 and 119 of the Workers Compensation Act (WCA). In addition, ongoing quality control monitoring by the Ministry was conducted throughout the project to ensure the safety of Ministry employees, and other workers at the site, in accordance with Section 115 of the WCA.

Analysis of the factors leading up to the fatal accident leads to a conclusion that the workers were not operating under the accepted traffic control plan for the work. There had been no submitted revision to the plan. Standard Specification 194.12 requires that any plan modifications shall be submitted to the Ministry Representative for review at least ten days prior to any plan changes being made in the field.

Jakes Construction has indicated that they were following the traffic control layout for continuous slow moving work, without lane closure, as shown in Figure 5.4.1 of the Traffic Control Manual. It is noted that this traffic control procedure is designed for *continuous slow moving work* and the work undertaken to install the stimsonites was actually stationary and intermittent moving work. The traffic control design as shown in Figure 5.4.1 does not anticipate workers to be on foot on the road surface. This work would typically involve vehicles working on or at the shoulder of the road such as sweeping, mowing, or flushing where workers are not required to leave their vehicles and the vehicles maintain a slow continuous movement forward.

Jakes Construction had not clearly advised the Ministry Representative of an intention to commence work installing the stimsonites and had not advised any Ministry Representative of the intention to deviate from the accepted traffic control plan. Further, it appears from the worker statements provided by Jakes Construction, that the workers deviated from the plan they had been following. A worker left the work vehicle to cross the highway to remove temporary lane markers and the shadow vehicle left its station behind the work vehicle to shadow the worker removing the temporary markers.

It is the Ministry's position that insufficient advance warning and the failure to follow the accepted traffic control plan, or to submit a modified plan as per SS194.12, is the root cause of this accident. The deviation from the procedure the workers were following is considered to be a significant contributing factor.



Other contributing factors include:

- The work order identifying additional work was not issued to Jakes.
- No quote for additional works was presented to the Ministry, from the Prime.
- There was unclear communication and no notification to the Ministry Representative regarding the additional work, by the Prime.
- Reduced visibility due to night and fog conditions.
- Removal of CMS and speed reader board as well as speed signage being set to far from the work.

## Recommendations

1. When traffic control plans are accepted, advise contractors that any changes to the plan must meet the requirements of SS 194.12. Ensure this is identified in contract.
  - a. Complete
2. Contractors to be advised that the work plan for additional work, outside the scope of the initial project work, must be reviewed with the Ministry Representative and not commenced until a work order or other document is in place. Ensure this is identified in contract or specs.
  - a. For discussion and follow up

Consider updating the Traffic Management Manual to include clearer language for assessing hazards especially hazards related to changing conditions.

Sincerely,

Tracy Wynnyk, CRSP  
Occupational Risk and Safety Advisor, Field Services  
Ministry of Transportation & Infrastructure

Gary Klein CRSP  
Manager, Provincial Highway and Infrastructure Safety  
Ministry of Transportation and Infrastructure

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