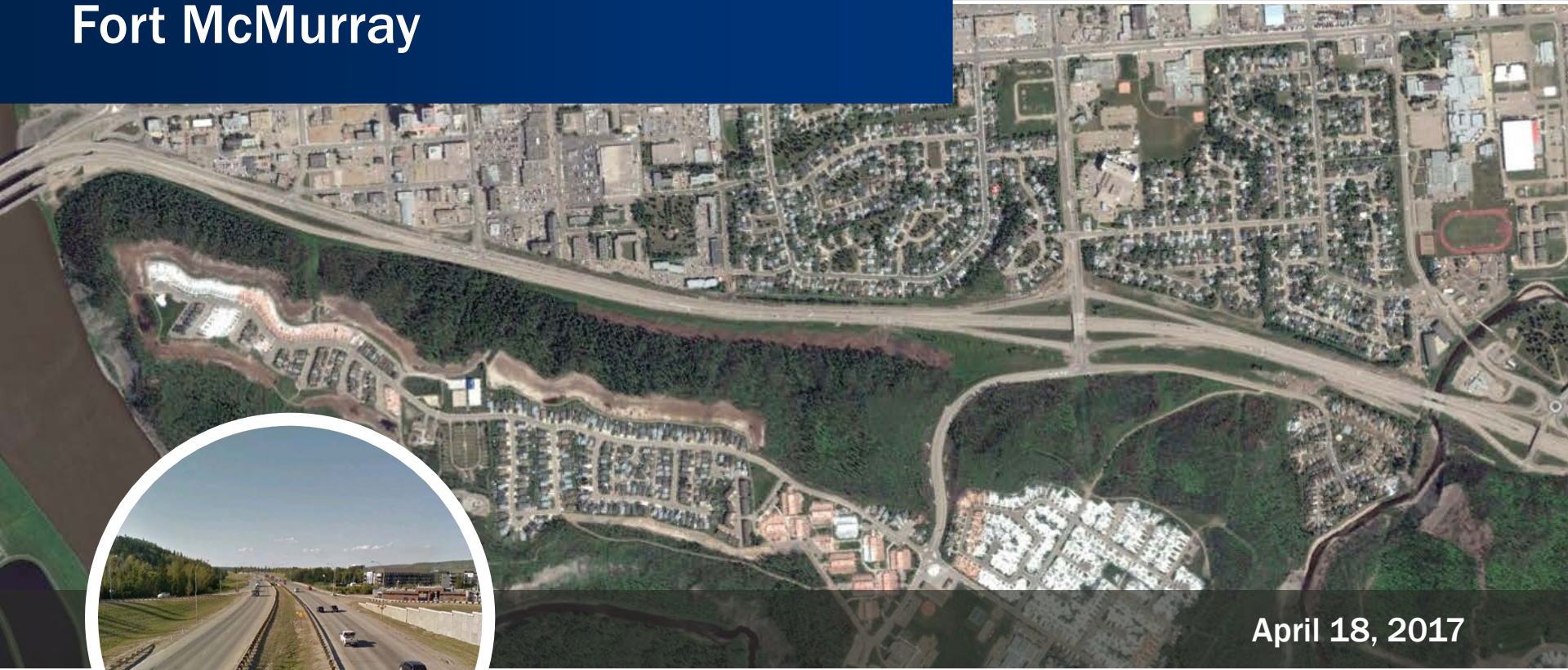
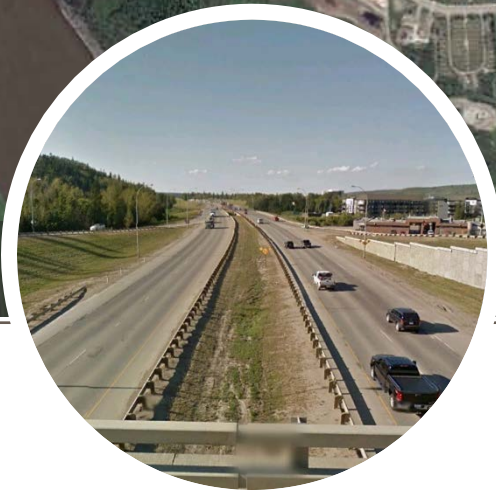


Highway 63 Speed Review Through Fort McMurray



April 18, 2017

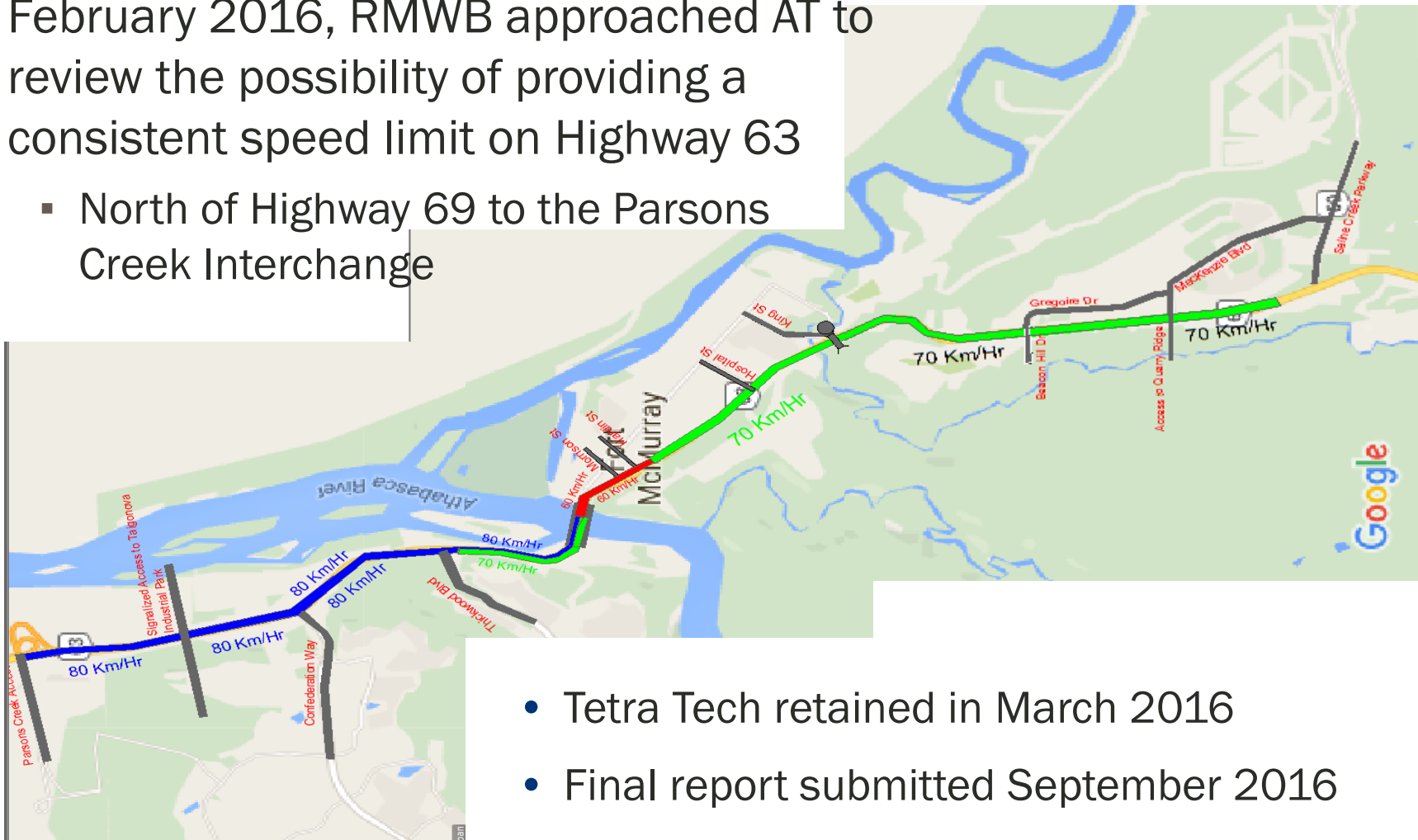


Presentation Outline

- Background and approach
- Applying current industry guidelines for establishing posted speed limits
- Collision data review
- Specific considerations for the study area
- Study recommendations
- RMWB spot speed study findings and implications

Study Background

- February 2016, RMWB approached AT to review the possibility of providing a consistent speed limit on Highway 63
 - North of Highway 69 to the Parsons Creek Interchange




- Tetra Tech retained in March 2016
- Final report submitted September 2016

Study Approach

- Data collection and site visit
 - Roadway geometry
 - Collision data
 - Presence and type of roadside hazards
 - Intersection/interchange spacing and traffic control
 - Pedestrian/cyclist facilities
 - Pavement condition
- Apply Transportation Association of Canada (TAC) guide
 - Canadian Guidelines for Establishing Posted Speed Limits
- Review corridor conditions in relation with:
 - TAC guidelines suggested speed limits
 - AT design guidelines and current practices
- Document in a report

Applying the TAC Guidelines

- Establish appropriate speed limits based on:
 - Road classification
 - Function
 - Physical characteristics
 - Engineering factors
- Assesses level of risk associated with establishing speed limits given surrounding constraints



Automated Speed Limit Guidelines
FORM A - Automated Speed Limit Guidelines Spreadsheet

Version:
 10-Apr-09

Name of Corridor:		Highway 63:11			
Segment Evaluated:		Thickwood Boulevard	to	Highway 686 Interchange	
Geographic Region:					
Road Agency:		Alberta Transportation			
Road Classification:		Highway	Length of Corridor:	6,276	m
Urban / Rural:		Urban	Design Speed: (Required for Freeway, Expressway, Highway)	90	km/h
Divided / Undivided:		Divided	Current Posted Speed: (For information only)	80	km/h
Major / Minor:		Major	Prevailing Speed: (85th Percentile - for information only)	90	km/h
# Through Lanes		2+ lanes	Policy: (Maximum Posted Speed)	80	km/h

		RISK	Score
A1	GEOMETRY (Horizontal)	Medium	6
A2	GEOMETRY (Vertical)	Lower	3
A3	AVERAGE LANE WIDTH	Medium	4
B	ROADSIDE HAZARDS	Medium	4
C1	PEDESTRIAN EXPOSURE	Lower	1
C2	CYCLIST EXPOSURE	Lower	1
D	PAVEMENT SURFACE	Lower	1
E1	NUMBER OF INTERSECTIONS WITH PUBLIC ROADS	Number of Occurrences	1
	STOP controlled intersection	0	
	Signalized intersection	1	
	Roundabout or traffic circle	0	
	Crosswalk	0	
	Active, at-grade railroad crossing	0	
E2	NUMBER OF INTERSECTIONS WITH PRIVATE ACCESS DRIVEWAYS	Number of Occurrences	0
	Left turn movements permitted	0	
	Right-in / Right-out only	0	
E3	NUMBER OF INTERCHANGES	Number of Occurrences	3
	Number of interchanges along corridor	3	
F	ON-STREET PARKING	N/A	0

Total Risk Score:

24

Recommended Posted Speed Limit (km/h):

As determined by road characteristics

80

As determined by policy


80

The recommended posted speed limit may be checked against the prevailing speeds of the roadway and the road's safety performance.

Comments:

Applying the TAC Guidelines

- Horizontal geometry – number of curves per km
- Vertical geometry – degree of steep grades over the study segment
- Roadside hazards – number per km or continuous hazards over the study segment
- Pavement surface – subjective condition ranking



Automated Speed Limit Guidelines
FORM A - Automated Speed Limit Guidelines Spreadsheet

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	Signalized intersection	1	
	Roundabout or traffic circle	0	
	Crosswalk	0	
	Active, at-grade railroad crossing	0	
E2	NUMBER OF INTERSECTIONS WITH PRIVATE ACCESS DRIVEWAYS	<i>Number of Occurrences</i>	0
	Left turn movements permitted	0	
	Right-in / Right-out only	0	
E3	NUMBER OF INTERCHANGES	<i>Number of Occurrences</i>	3
	Number of interchanges along corridor	3	
F	ON-STREET PARKING	N/A	0

Total Risk Score:

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Recommended Posted Speed Limit (km/h):

As determined by road characteristics

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As determined by policy

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The recommended posted speed limit may be checked against the prevailing speeds of the roadway and the road's safety performance.

Comments:

Applying the TAC Guidelines

Segment From	Km	Segment To	Km	Existing Posted Speed (km/h)	Direction of Travel	TAC Recommended Speed Limit (km/h)
North of Highway 69	5.2	South of Hardin Street	12.0	70	Northbound and Southbound	80
South of Hardin Street	12.0	Athabasca River Crossing	13.3	60	Northbound and Southbound	80
Athabasca River Crossing	13.7	Thickwood Boulevard	14.7	80	Northbound only	80
Athabasca River Crossing	13.3	Thickwood Boulevard	14.7	70	Southbound only	80
Thickwood Boulevard	14.7	Highway 686	21.0	80	Northbound and Southbound	80
North of Highway 69	5.2	Highway 686	21.0	60 to 80	Northbound and Southbound	80

Collision Data Review

- Gain an understanding of safety performance issues along the corridor
 - Specifically attributed to speed
- Speed specifically referenced in only 11 collisions along the corridor between 2008 and 2012 (<1%)
- Speed may be a contributing factor in many other collisions
- Over 57% of collisions were rear end
 - As the corridor continues to be converted to a freeway (removal of at-grade intersections), this frequency of rear end collisions is expected to drop significantly

Other Considerations

- South of Responders Way to south of the Athabasca River crossing
 - Urban cross-section
 - Presence of barrier curbs
 - Concrete median barrier
 - AT's practice: max. 70 km/h posted speed where barrier curb is present (rolling hazard)
- Horizontal geometry includes a 261 m radius curve
 - Between Morrison Street and the Athabasca River
 - Adequate for 70 km/h or less posted speed



Other Considerations

- Four existing signalized intersections with one other being constructed in 2017
 - AT's practice: max. 70 km/h posted speed when multiple signals are present
 - Provides drivers longer perception-reaction times
- Methods of Reducing Collisions on Alberta Roads, 2010
 - Consistent speed limits
 - One of 33 highly effective measures identified

Methods of Reducing Collisions on Alberta Roads

Speed Related

Sept. 2010

Page 11

Consistent Speed Limits

Land Use

Urban	✓
Suburban	✓
Rural	✓

Posted Speeds

MAXIMUM ?	≤50 km/h	✓
	60-70 km/h	✓
	80-90 km/h	✓
	≥100 km/h	✓

Application Guidance

Objective: to consistently apply regulatory speed limits throughout a road network to better reflect the design speed and the inherent risks, as well as to increase motorist compliance, reduce speed variance and reduce collision severity.

Speed limits should be established based on the following principles for a road segment:

- Horizontal alignment
- Average lane width
- Roadside hazards
- Pedestrian and cyclist exposure
- Pavement surface
- Intersections and driveways
- On-street parking

A systematic method for incorporating these criteria to arrive at a speed limit value is provided in the TAC *Guidelines for Establishing Posted Speed Limits*. The determined value should be compared with the prevailing 85th percentile speed, if known.

This measure is relatively easy to implement, but may also require road agencies to review their speed limit setting policies and bylaws.

Alberta Status

	N	L	C	P
Large Municipalities			✓	✓
Small Municipalities		✓		
Highways			✓	✓

N=None; L=Limited; C=Common; P=Proven

Documented Benefits

Unknown CRF, although studies have shown consistent speeds have lower crash rates¹

10% - 16% of all injury collisions

Typical Installation Cost

	Units	Cost Range*	
		Low	High
Retrofit	Each	\$25	\$500
New	-	-	-

*New projects should not result in any additional capital costs.

Further Guidance

MUTCDC [Section A2.3]

TAC *Canadian Guidelines for Establishing Posted Speed Limits*

Other Effective Strategies and Enhancements

- Gateway treatments
- Transverse pavement markings
- Variable speed limits
- Revise speed limit policy

Study Recommendations

- Extend the 70 km/h posted speed limit from Mackenzie Boulevard south to include the Highway 69 intersection upon its signalization (i.e., implement a speed reduction from 100 km/h to 70 km/h)
- Maintain the 70 km/h posted speed limit from Mackenzie Boulevard to south of Hardin Street
- Raise the posted speed limit from 60 km/h to 70 km/h from south of Hardin Street to the Athabasca River crossing
- Raise the posted speed limit to 80 km/h of the southbound lanes from the Athabasca River crossing to Thickwood Boulevard
- Maintain the existing posted speed limit of 80 km/h from Thickwood Boulevard to north of the Parsons Creek Interchange for the southbound lanes
- Maintain the existing posted speed limit of 80 km/h from the Athabasca crossing to north of Parsons Creek Interchange for the northbound lanes

Study Recommendations



RMWB Spot Speed Study

- Recognize vehicles tend to be travelling at speeds that would suggest an 80 km/h posted speed would be appropriate
 - Between Mackenzie Blvd and Hospital Street
 - Particularly in the southbound direction
- Current AT practices govern
- Increase to 80 km/h to establish one posted speed through Fort McMurray would require:
 - Removal of signalized intersections and interchange construction
 - Removal of barrier curb or reduce the risk of a vehicle hitting the curb face
 - Possible curve revision

Traffic Speed Summary of Eight Locations

