APPENDIX 2: CONCEPT EVALUATION RESULTS

Level 1 Screening Results

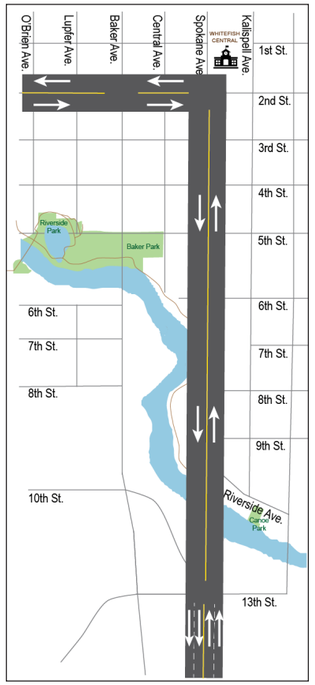
Level 2 Screening Results

Preferred Concept Details

LEVEL 1 SCREENING RESULTS

Level 1 Lane Configuration Alternatives - US 93 FEIS/ROD

DOWNTOWN WHITEFISH
HIGHWAY STUDY



EIS-1: NO ACTION

FEATURES:

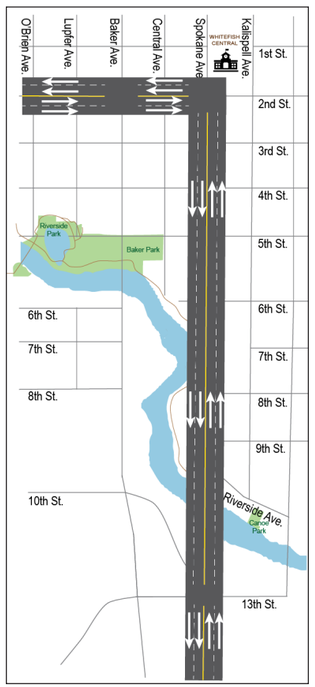
- Two lanes on Spokane Ave to 2nd St
- Two lanes on 2nd St

RECOMMENDATIONS FROM PAST PLANS:

- 1994 US 93 Somers to Whitefish FEIS/ROD: **Baseline**

LEVEL I SCREENING RESULT: N/A

- Use for baseline comparison purposes



EIS-2: ALTERNATIVE A (FOUR-LANE)

FEATURES:

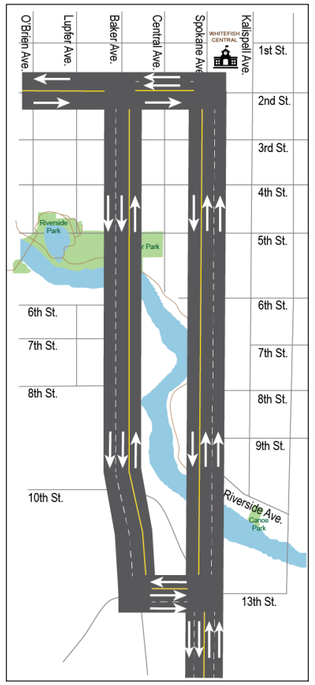
- Four lanes on Spokane Ave to 2nd St
- Four lanes on 2nd St

RECOMMENDATIONS FROM PAST PLANS:

- 1994 US 93 Somers to Whitefish FEIS/ROD: **Advanced But Not Preferred**
- 2010 Whitefish Urban Corridor Study: **Not Advanced to Second-Level Screening**
  - Poor future traffic performance
  - Conflicts with local plans

LEVEL I SCREENING RESULT: DO NOT ADVANCE

- Physical constraints make 4-lane expansion unrealistic



EIS-3: ALTERNATIVE C (OFFSET)

FEATURES:

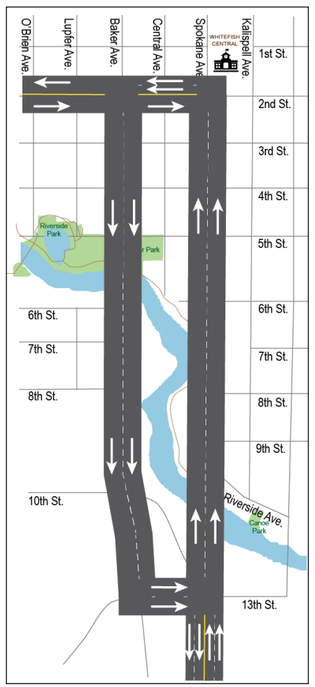
- Three lanes on Spokane Ave (two northbound, one southbound)
- Three lanes on 2nd St (two westbound, one eastbound)
- Three lanes on Baker Ave (two southbound, one northbound)
- Three lanes on 13th St (two eastbound, one westbound)

RECOMMENDATIONS FROM PAST PLANS:

- 1994 US 93 Somers to Whitefish FEIS/ROD: **Advanced But Not Preferred**
- 2010 Whitefish Urban Corridor Study: **Advanced to Second-Level Screening - with Modifications (see CS-2)**
  - Acceptable future traffic performance
  - Provides two-way traffic circulation in the downtown

LEVEL I SCREENING RESULT: ADVANCE

- Reevaluation of 3-lane configuration on 2nd St warranted due to increased traffic volumes



EIS-4: ALTERNATIVE C (COUPLET-1)

FEATURES:

- Two northbound lanes on Spokane Ave
- Two southbound lanes on Baker Ave
- Three lanes on 2nd St (two westbound, one eastbound)
- Two eastbound lanes on 13th St

RECOMMENDATIONS FROM PAST PLANS:

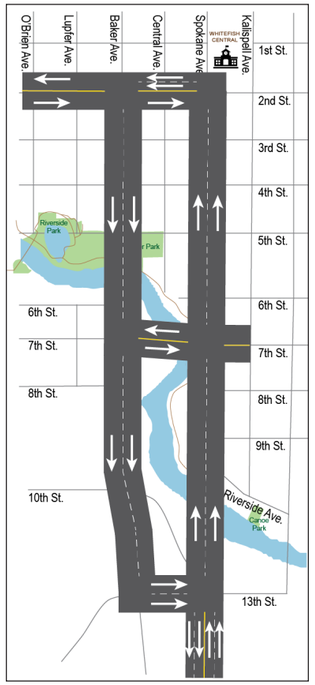
- 1994 US 93 Somers to Whitefish FEIS/ROD: **Advanced But Not Preferred**
- 2010 Whitefish Urban Corridor Study: **Not Advanced to Second-Level Screening**
  - Poor future traffic performance
  - One-way system and 3-lane configuration on 2nd St not consistent with local plans/desires

LEVEL I SCREENING RESULT: DO NOT ADVANCE

- One-way system not consistent with local plans

Level 1 Lane Configuration Alternatives - US 93 FEIS/ROD

DOWNTOWN WHITEFISH
HIGHWAY STUDY



EIS-5: ALTERNATIVE C (COUPLET-2)

FEATURES:

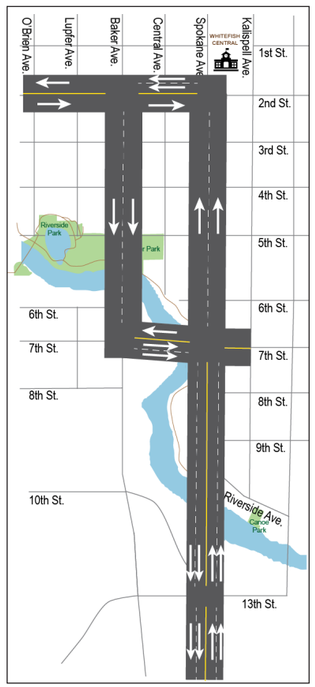
- Two northbound lanes on Spokane Ave
- Two southbound lanes on Baker Ave
- Three lanes on 2nd St (two westbound, one eastbound)
- Two eastbound lanes on 13th St
- Two lane bridge across the Whitefish River at 7th St (one lane in each direction)

RECOMMENDATIONS FROM PAST PLANS:

- 1994 US 93 Somers to Whitefish FEIS/ROD: **Advanced But Not Preferred**
- 2010 Whitefish Urban Corridor Study: **Not Advanced to Second-Level Screening**
  - One-way system and 3-lane configuration on 2nd St not consistent with local plans/desires

LEVEL I SCREENING RESULT: DO NOT ADVANCE

- One-way system not consistent with local plans



EIS-6: ALTERNATIVE C (COUPLET-3)

FEATURES:

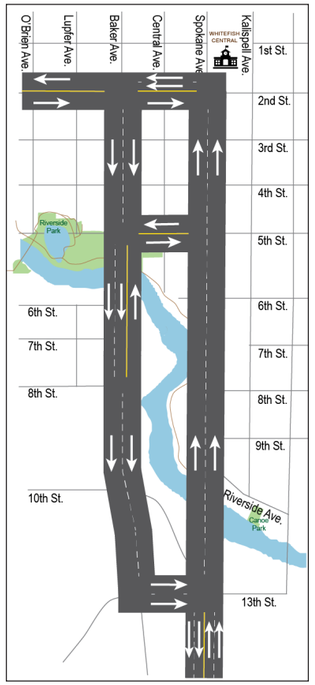
- Four lanes on Spokane Ave between 13th St and 7th St
- Two northbound lanes on Spokane Ave between 7th St and 2nd St
- Three lanes on 2nd St (two westbound, one eastbound)
- Two southbound lanes on Baker Ave between 2nd St and 7th St
- Three lane bridge across Whitefish River at 7th St (two eastbound, one westbound)

RECOMMENDATIONS FROM PAST PLANS:

- 1994 US 93 Somers to Whitefish FEIS/ROD: **Preferred Alternative**
  - Enhanced traffic performance and circulation
  - Supported by Whitefish City Council
- 2010 Whitefish Urban Corridor Study: **Not Advanced to Second-Level Screening**
  - Changed community conditions identified since FEIS
  - One-way system and 3-lane configuration on 2nd St not consistent with local plans/desires

LEVEL I SCREENING RESULT: ADVANCE

- Preferred alternative in FEIS/ROD



EIS-7: ALTERNATIVE C (COUPLET-4)

FEATURES:

- Two northbound lanes on Spokane Ave
- Three lanes on 2nd St (two westbound, one eastbound)
- Two southbound lanes on Baker Ave between 2nd St and 5th St
- Improve 5th St between Spokane Ave and Baker Ave (two lanes, one in each direction)
- Three lanes on Baker Ave between 5th St and 8th St (two southbound, one northbound)
- Two southbound lanes on Baker Ave between 8th St and 13th St
- Two lanes on 13th St (one in each direction)

RECOMMENDATIONS FROM PAST PLANS:

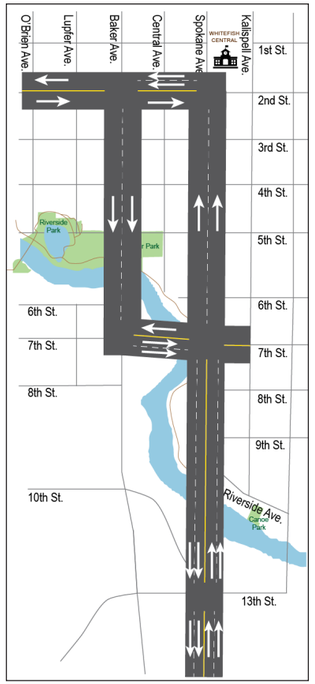
- 1994 US 93 Somers to Whitefish FEIS/ROD: **Advanced But Not Preferred**
- 2010 Whitefish Urban Corridor Study: **Not Advanced to Second-Level Screening**
  - One-way system and 3-lane configuration on 2nd St not consistent with local plans/desires

LEVEL I SCREENING RESULT: DO NOT ADVANCE

- One-way system not consistent with local plans

Level 1 Lane Configuration Alternatives - Whitefish Urban Corridor Study

DOWNTOWN WHITEFISH
HIGHWAY STUDY



CS-1: MODIFIED ROD CONFIGURATION

FEATURES:

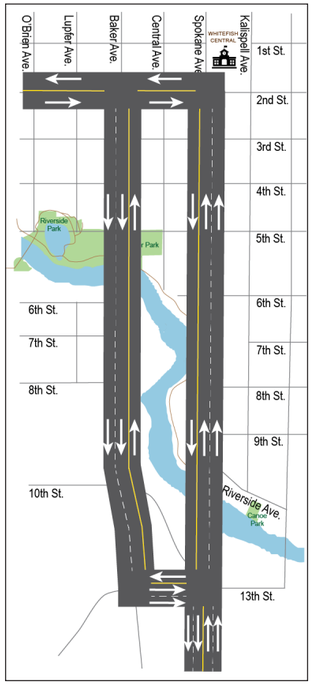
- **EIS 6: Alternative C (Couplet-3)** features:
  - Four lanes on Spokane Ave between 13th St and 7th St
  - Two northbound lanes on Spokane Ave between 7th St and 2nd St
  - Three lanes on 2nd St (two westbound, one eastbound)
  - Two southbound lanes on Baker Ave between 2nd St and 7th St
  - Three lane bridge across Whitefish River at 7th St (two eastbound, one westbound)
- Additional changes:
  - Appropriate auxiliary turn lanes at major intersections
  - Design changes to accommodate truck movements at key intersections

RECOMMENDATIONS FROM PAST PLANS:

- 2010 Whitefish Urban Corridor Study: **Not Advanced to Second-Level Screening**
  - One-way system and 3-lane configuration on 2nd St not consistent with local plans/desires

LEVEL I SCREENING RESULT: DO NOT ADVANCE

- One-way system not consistent with local plans



CS-2: MODIFIED ALTERNATIVE C (OFFSET)

FEATURES:

- Three lanes on Spokane Ave (two northbound, one southbound)
- Two lanes on 2nd St (one in each direction)
- Three lanes on Baker Ave (two southbound, one northbound)
- Three lanes on 13th St (two eastbound, one westbound)

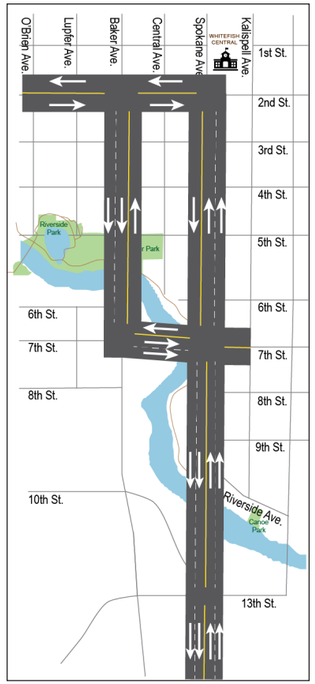
RECOMMENDATIONS FROM PAST PLANS:

- 2010 Whitefish Urban Corridor Study: **Advanced to Second-Level Screening**
  - Maintains a two-lane configuration on 2nd St consistent with local desires
  - Improved traffic operations over **EIS-3**

- 2018 Downtown Business District Master Plan: **Not Supported**
  - Third lane on Spokane Ave precludes the ability to construct a protected bikeway
  - Possible bottle-neck traffic conditions at 2nd St/Spokane Ave intersection

LEVEL I SCREENING RESULT: ADVANCE

- Advanced option from 2010 *Corridor Study*



CS-3: CONTRA-FLOW CONFIGURATION

FEATURES:

- Four lanes on Spokane Ave to 7th St
- Three lanes on Spokane Ave between 7th St and 2nd St (two northbound, one southbound)
- Two lanes on 2nd St (one in each direction)
- Three lanes on Baker Ave between 2nd St and 7th St (two southbound, one northbound)
- Three lane bridge over Whitefish River at 7th St (two eastbound, one westbound)

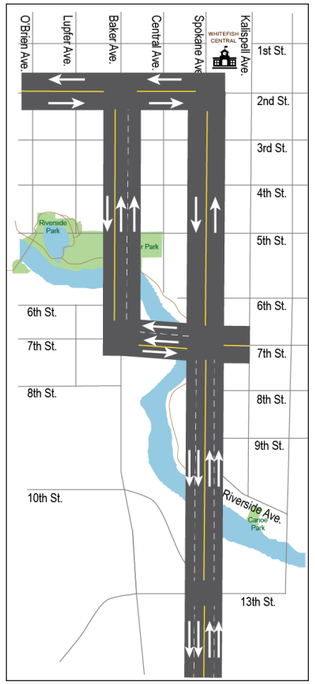
RECOMMENDATIONS FROM PAST PLANS:

- 2010 Whitefish Urban Corridor Study: **Advanced to Second-Level Screening**
  - Best performing under current and future traffic conditions

- 2018 Downtown Business District Master Plan: **Not Supported**
  - Third lane on Spokane Ave precludes the ability to construct a protected bikeway
  - Possible bottle-neck traffic conditions at 2nd St/Spokane Ave intersection

LEVEL I SCREENING RESULT: ADVANCE

- Advanced option from 2010 *Corridor Study*



CS-4: TRUCK ROUTE CONFIGURATION

FEATURES:

- Four lanes on Spokane Ave to 7th St
- Two lanes on Spokane Ave between 7th St and 2nd St (one in each direction)
- Two lanes on 2nd St (one in each direction)
- Three lanes on Baker Ave between 2nd St and 7th St (two northbound, one southbound)
- Three lane bridge over Whitefish River at 7th St (two westbound, one eastbound)
- Truck route on Baker Ave

RECOMMENDATIONS FROM PAST PLANS:

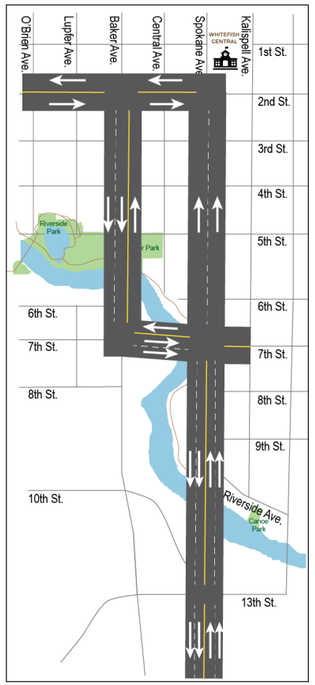
- 2010 Whitefish Urban Corridor Study: **Not Advanced to Second-Level Screening**
  - May reduce truck traffic on 2nd St and is sensitive to local plans but demonstrates inadequate future traffic performance

LEVEL I SCREENING RESULT: DO NOT ADVANCE

- Inadequate future traffic performance

Level 1 Lane Configuration Alternatives - Downtown Master Plan

DOWNTOWN WHITEFISH
HIGHWAY STUDY



MP-1: DOWNTOWN MASTER PLAN CONFIGURATION (2006)

FEATURES:

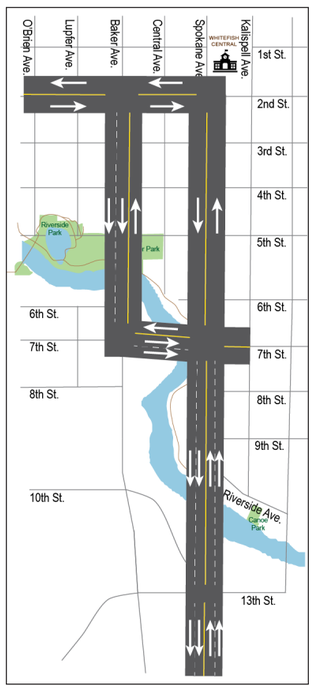
- Four lanes on Spokane Ave to 7th St
- Two northbound lanes on Spokane Ave between 7th St and 2nd St
- Two lanes on 2nd St (one in each direction)
- Three lanes on Baker Ave between 2nd St and 7th St (two southbound, one northbound)
- Three lane bridge over Whitefish River at 7th St (two eastbound, one westbound)

RECOMMENDATIONS FROM PAST PLANS:

- 2010 Whitefish Urban Corridor Study: **Not Advanced to Second-Level Screening**
  - Does not rank among best performing options, less effective traffic operations as compared to other alternatives

LEVEL I SCREENING RESULT: DO NOT ADVANCE

- One-way system not consistent with local plans



MP-2: DOWNTOWN MASTER PLAN CONFIGURATION - CONTRA-FLOW (2015/2018)

FEATURES:

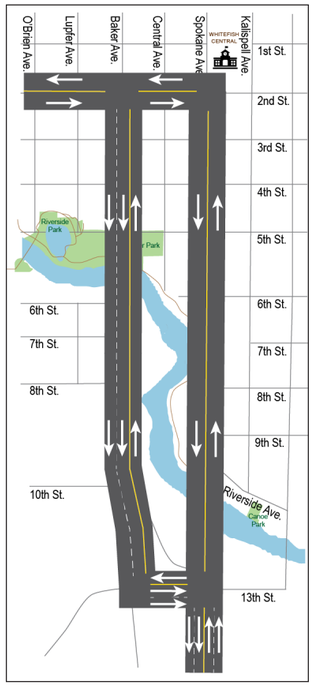
- Four lanes on Spokane Ave to 7th St
- Two lanes on Spokane Ave between 7th St and 2nd St (one in each direction)
- Two lanes on 2nd St (one in each direction)
- Three lanes on Baker Ave between 2nd St and 7th St (two southbound, one northbound)
- Three lane bridge over Whitefish River at 7th St (two eastbound, one westbound)

RECOMMENDATIONS FROM PAST PLANS:

- 2018 Downtown Business District Master Plan: **Supported**
  - Provides space to construct a protected bikeway

LEVEL I SCREENING RESULT: ADVANCE

- Supported in *Downtown Master Plan*



MP-3: DOWNTOWN MASTER PLAN CONFIGURATION - MODIFIED ALTERNATIVE C (OFFSET) (2015/2018)

FEATURES:

- Two lanes on Spokane Ave (one in each direction)
- Two lanes on 2nd St (one in each direction)
- Three lanes on Baker Ave (two southbound, one northbound)
- Three lanes on 13th St (two eastbound, one westbound)

RECOMMENDATIONS FROM PAST PLANS:

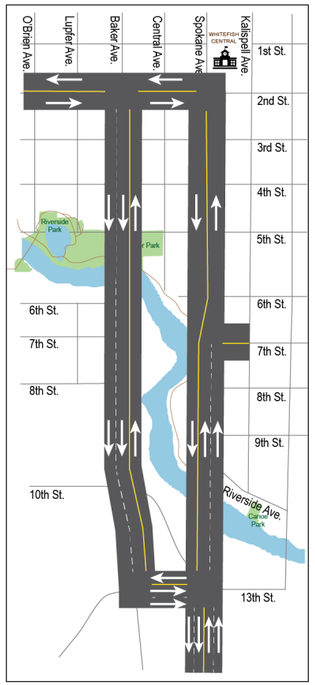
- 2018 Downtown Business District Master Plan: **Supported**
  - Provides space to construct a protected bikeway

LEVEL I SCREENING RESULT: ADVANCE

- Supported in *Downtown Master Plan*

Level 1 Lane Configuration Alternatives - New Configurations

DOWNTOWN WHITEFISH
HIGHWAY STUDY



DWH-1: 2-LANE/3-LANE HYBRID

FEATURES:

- Three lanes on Spokane Ave between 13th St and 7th St (two northbound, one southbound)
- Two lanes on Spokane Ave (one in each direction) between 7th St and 2nd St
- Two lanes on 2nd St (one in each direction)
- Three lanes on Baker Ave between 2nd St and 13th St (two southbound, one northbound)
- Two lanes on 7th St between Spokane Ave and Kalispell Ave (one in each direction)

RECOMMENDATIONS FROM PAST PLANS:

- Developed by the *Downtown Whitefish Highway Study* steering committee

LEVEL I SCREENING RESULT: ADVANCE

- Developed by steering committee

Level 1 Screening Results

DOWNTOWN WHITEFISH HIGHWAY STUDY

Original Source	Lane Configuration Alternatives		Level 1 Screening Criteria*				Level 1 Screening Result	Rationale
			1A: Was alternative preferred in previous review documents?		1B: If 1A=No, is reevaluation warranted due to changed conditions?	2: Is alternative supported by Steering Committee for further evaluation?		
1994 FEIS/ROD Whitefish Area Alternatives	EIS-1	No Action	---	Baseline Configuration (1994)	---	---	**ADVANCE** *(Concept A)*	Use for baseline comparison. Updated to reflect 2020 existing conditions.
	EIS-2	Alternative A (Four Lane)	No	Advanced But Not Preferred (1994) Not Advanced to Second-Level Screening (2010)	No	---	**Do Not Advance**	Physical constraints make 4-lane expansion unrealistic.
	EIS-3	Alternative C (Offset)	No	Advanced But Not Preferred (1994) Advanced to Second-Level Screening with Modifications - see CS-2 (2010)	**Yes**	**Yes**	**ADVANCE** *(Concept B)*	Reevaluation of 3-lane configuration on 2nd Street warranted due to increased traffic volumes.
	EIS-4	Alternative C (Couplet-1)	No	Advanced But Not Preferred (1994) Not Advanced to Second-Level Screening (2010)	No	---	**Do Not Advance**	One-way system not consistent with local plans.
	EIS-5	Alternative C (Couplet-2)	No	Advanced But Not Preferred (1994) Not Advanced to Second-Level Screening (2010)	No	---	**Do Not Advance**	One-way system not consistent with local plans.
	EIS-6	Alternative C (Couplet-3)	**Yes**	**Preferred Alternative** (1994) Not Advanced to Second-Level Screening (2010)	---	No	**Do Not Advance**	One-way system not consistent with local plans.
	EIS-7	Alternative C (Couplet-4)	No	Advanced But Not Preferred (1994) Not Advanced to Second-Level Screening (2010)	No	---	**Do Not Advance**	One-way system not consistent with local plans.
2010 Corridor Study	CS-1	Modified ROD Configuration	No	Not Advanced to Second-Level Screening (2010)	No	---	**Do Not Advance**	One-way system not consistent with local plans.
	CS-2	Modified Alt C (Offset)	**Yes**	**Advanced to Second-Level Screening** (2010) Not supported (2018)	---	**Yes**	**ADVANCE** *(Concept C)*	Advanced option from 2010 Corridor Study.
	CS-3	Contra-Flow Configuration	**Yes**	**Advanced to Second-Level Screening** (2010) Not supported (2018)	---	**Yes**	**ADVANCE** *(Concept D)*	Advanced option from 2010 Corridor Study.
	CS-4	Truck Route Configuration	No	Not Advanced to Second-Level Screening (2010)	No	---	**Do Not Advance**	Inadequate future traffic performance.
2006 - 2018 Downtown Master Plan	MP-1	2006 MP Configuration	No	Not Advanced to Second-Level Screening (2010)	---	No	**Do Not Advance**	One-way system not consistent with local plans.
	MP-2	2018 MP Configuration - Contra-Flow	**Yes**	**Supported (2018)**	---	**Yes**	**ADVANCE** *(Concept E)*	Supported in Downtown Master Plan.
	MP-3	2018 MP Configuration - Modified Alt C (Offset)	**Yes**	**Supported (2018)**	---	**Yes**	**ADVANCE** *(Concept F)*	Supported in Downtown Master Plan.
New Configurations	DWH-1	2-Lane/3-Lane Hybrid	---	Developed by Steering Committee	**Yes**	**Yes**	**ADVANCE** *(Concept G)*	Developed by steering committee

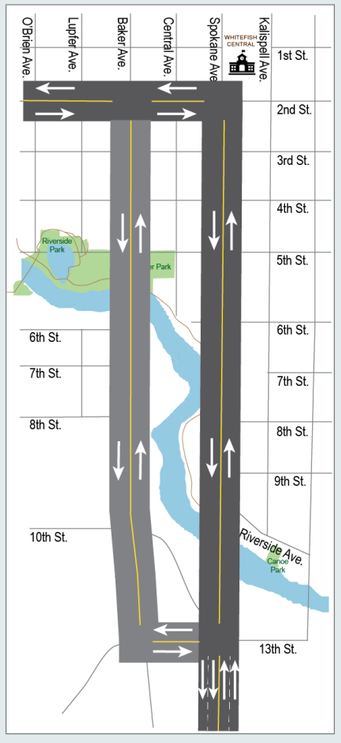
**Must respond Yes to 1A or 1B and 2 to advance to level 2.*

LEVEL 2 SCREENING RESULTS

LEVEL II SCREENING - CONCEPTS

DOWNTOWN WHITEFISH
HIGHWAY STUDY

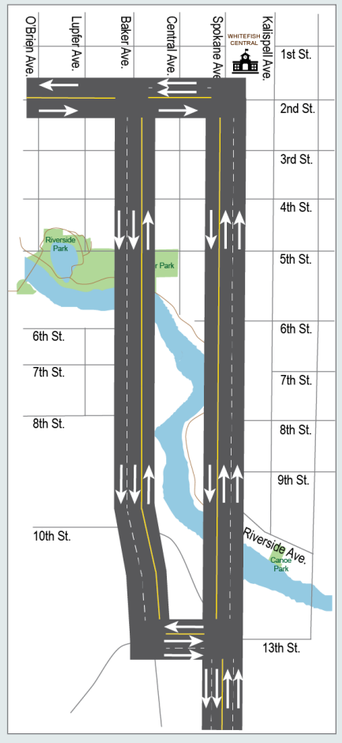
CONCEPT A:
EXISTING CONFIGURATION (RECONSTRUCTED)



FEATURES:

- Two lanes on Spokane Ave to 2nd St
- Two lanes on 2nd St

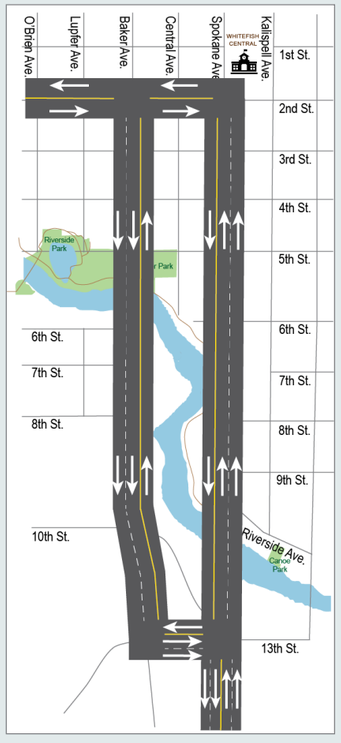
CONCEPT B:
ALTERNATIVE C (OFFSET)



FEATURES:

- Three lanes on Spokane Ave (two northbound, one southbound)
- Three lanes on 2nd St (two westbound, one eastbound)
- Three lanes on Baker Ave (two southbound, one northbound)
- Three lanes on 13th St (two eastbound, one westbound)

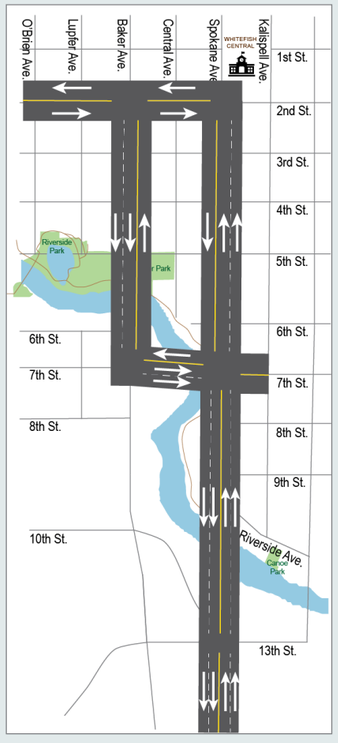
CONCEPT C:
MODIFIED ALTERNATIVE C (OFFSET)



FEATURES:

- Three lanes on Spokane Ave (two northbound, one southbound)
- Two lanes on 2nd St (one in each direction)
- Three lanes on Baker Ave (two southbound, one northbound)
- Three lanes on 13th St (two eastbound, one westbound)

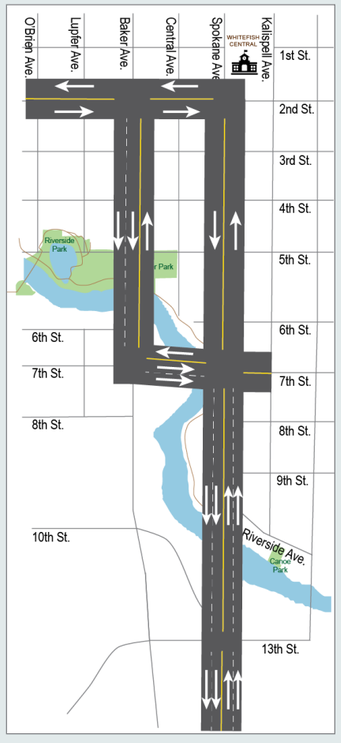
CONCEPT D:
CONTRA-FLOW CONFIGURATION



FEATURES:

- Four lanes on Spokane Ave to 7th St
- Three lanes on Spokane Ave between 7th St and 2nd St (two northbound, one southbound)
- Two lanes on 2nd St (one in each direction)
- Three lanes on Baker Ave between 2nd St and 7th St (two southbound, one northbound)
- Three lane bridge over Whitefish River at 7th St (two eastbound, one westbound)

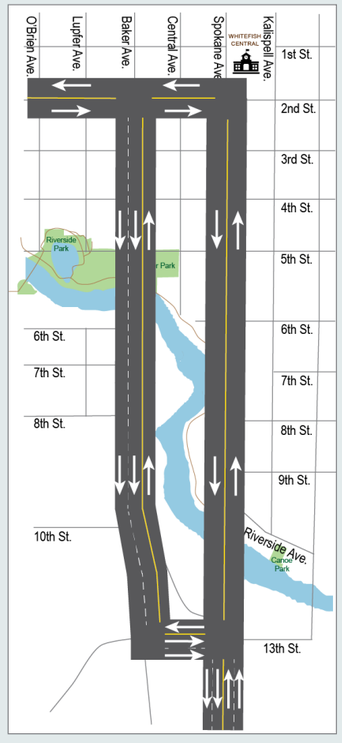
CONCEPT E:
2018 MP CONFIGURATION - CONTRA-FLOW



FEATURES:

- Four lanes on Spokane Ave to 7th St
- Two lanes on Spokane Ave between 7th St and 2nd St (one in each direction)
- Two lanes on 2nd St (one in each direction)
- Three lanes on Baker Ave between 2nd St and 7th St (two southbound, one northbound)
- Three lane bridge over Whitefish River at 7th St (two eastbound, one westbound)

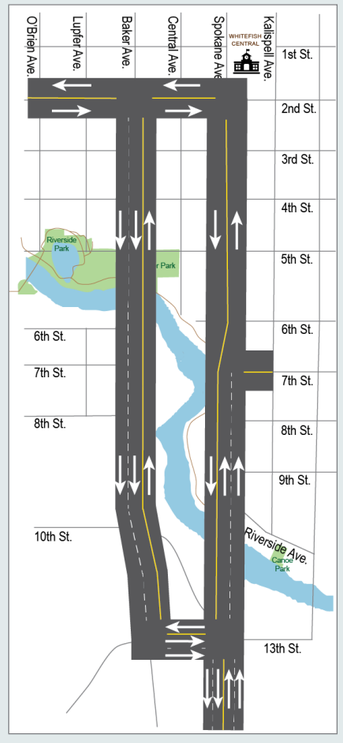
CONCEPT F:
2018 MP CONFIGURATION - MODIFIED ALT C (OFFSET)



FEATURES:

- Two lanes on Spokane Ave (one in each direction)
- Two lanes on 2nd St (one in each direction)
- Three lanes on Baker Ave (two southbound, one northbound)
- Three lanes on 13th St (two eastbound, one westbound)

CONCEPT G:
2-LANE / 3-LANE HYBRID



FEATURES:

- Three lanes on Spokane Ave to 7th Street (two northbound, one southbound)
- Connect 7th St between Spokane Ave and Kalispell Ave
- Two lanes on Spokane Ave between 7th St and 2nd St (one in each direction)
- Two lanes on 2nd St (one in each direction)
- Three lanes on Baker Ave (two southbound, one northbound)
- Three lanes on 13th St (two eastbound, one westbound)

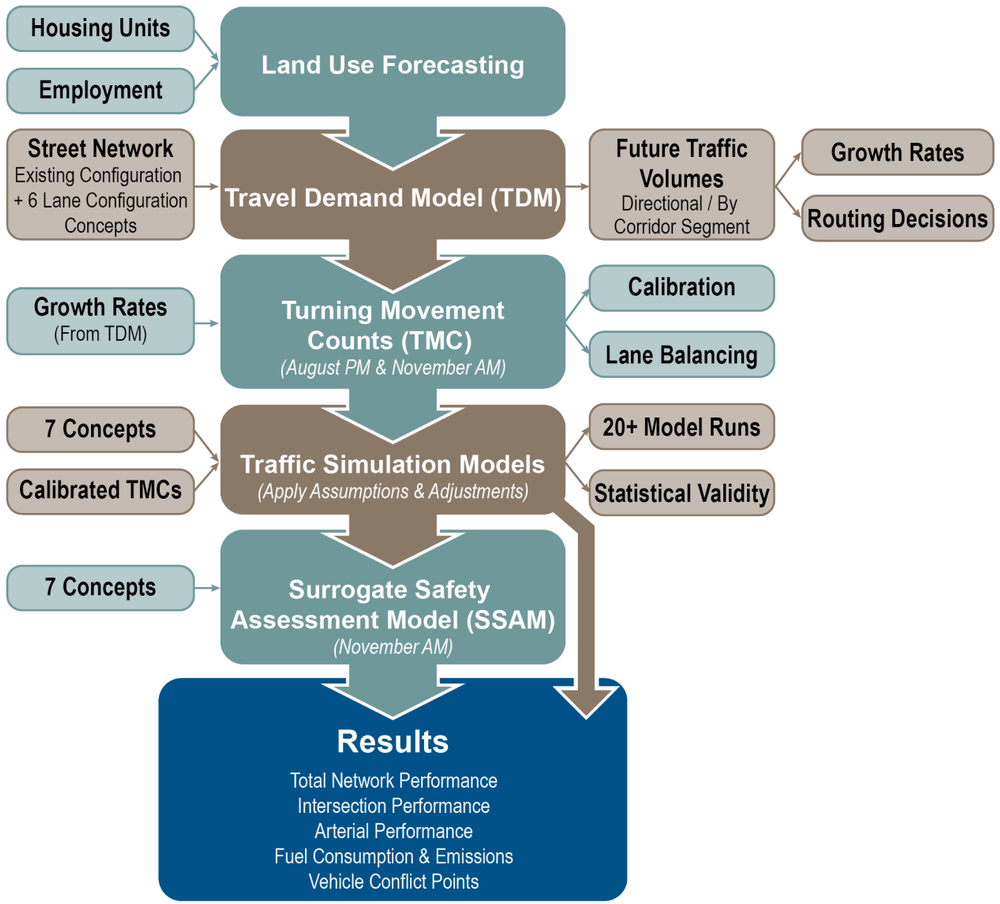
TRAFFIC SIMULATION - MODEL DEVELOPMENT

DOWNTOWN WHITEFISH
HIGHWAY STUDY

SIMULATION AND MODELING PROCESS

The traffic analysis process required several steps, as shown in the figure below. Using the land use forecasts agreed upon by the Steering Committee, MDT provided projected roadway traffic volumes for each of the 7 concepts using a calibrated travel demand model. These projected traffic volumes were translated into turning movement counts using growth rates and routing decisions as output from the model. Traffic conditions were assessed using the projected 2045 traffic volumes for the August PM and November AM peak hours. These periods represent traffic conditions experienced during the peak and off-peak seasons, respectively. Calibration and adjustments were needed to ensure lanes were properly balanced and traffic was appropriately distributed throughout the network.

Each of the concepts were then modeled in *Synchro* using the calibrated turning movement counts as inputs. Overall operations were optimized by adjusting intersection approach configurations, traffic control, and signal timings. Statistical tests were performed to ensure the model results were statistically valid. Results of the traffic simulations are shown on the following pages.



ASSUMPTIONS & ADJUSTMENTS

In addition to optimizing signal timings, the following assumptions and adjustments were made to each concept model in *Synchro* to optimize performance. All assumptions listed below were used as a starting point for a comparative traffic analysis of the concepts; further refinement may be necessary.

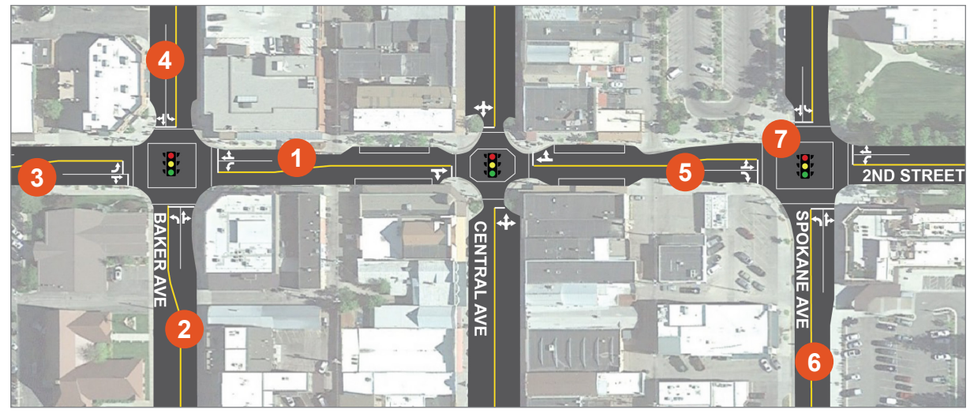
2ND STREET

CONCEPT A
- No changes to existing configuration

CONCEPT B
- 1: drop second WB lane as right-turn lane
- 2: extend NB left-turn bay
- 3: extend EB left-turn bay
- 4: extend SB left-turn bay
- 5: extend EB shared thru/ left-turn lane
- 6: install dual NB left-turn
- 7: modify to split phase signal

CONCEPTS C AND D
- 1: install new WB right-turn lane
- 2: extend NB left-turn bay
- 3: extend EB left-turn bay
- 4: extend SB left-turn bay
- 5: extend EB shared thru/ left-turn lane
- 6: provide second NB lane

CONCEPTS E, F, AND G
- Concept C & D except single NB lane on Spokane Ave (6)



7TH STREET

CONCEPT D
- 8: signalize intersection; dedicated left-turn bays on all legs
- 9: install dedicated NB right-turn lane
- 10: install dedicated WB right-turn lane
- 11: construct new three-lane 7th St bridge
- 12: signalize intersection; dedicated left-turn bays on all legs
- 13: install second SB thru lane
- 14: extend 7th St through parking lot
- 15: provide two NB thru lanes; dedicated NB right-turn lane
- 16: install dedicated EB right-turn lane

CONCEPT E
- Concept D except single NB thru lane on Spokane Ave (15)

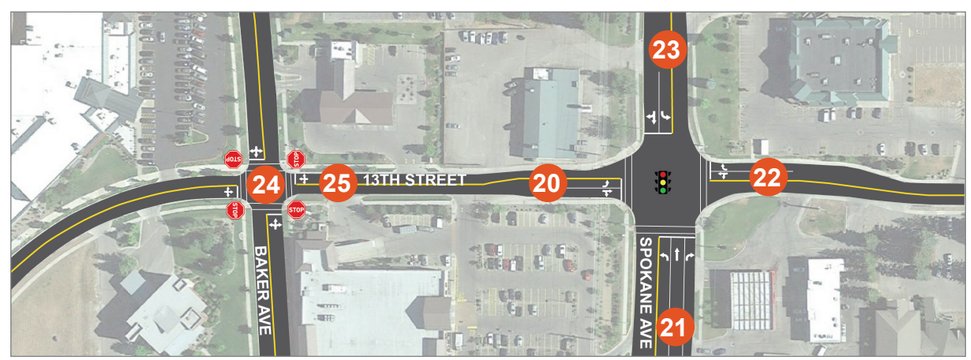
CONCEPT G
- 12: signalize intersection
- 14: extend 7th St through parking lot
- 15: drop second NB lane as right-turn lane

13TH STREET

CONCEPT F
- 20: drop second EB lane as right-turn lane
- 22: install dedicated WB left-turn lane
- 23: provide second SB thru lane
- 24: signalize intersection; dedicated left-turn bays on all legs
- 25: install dedicated WB right-turn bay

CONCEPTS B, C, AND G
- Same as Concept F except two NB thru lanes on Spokane Ave (21)

CONCEPTS A, D, & E
- 22: realign east & west legs; dedicated WB left-turn bay
- 23: provide second SB thru lane



TRAFFIC SIMULATION - RESULTS

DOWNTOWN WHITEFISH
HIGHWAY STUDY

INTERSECTION PERFORMANCE RESULTS

SUB-CRITERION 1A assesses the traffic operations at key intersections within the roadway network. It is important that the concept demonstrates optimized traffic operations at the major intersections in the network as characterized by vehicle delay. The metric used to evaluate intersection operations is the total intersection delay which is calculated by taking a volume weighted average of the total delay which is a combination of delay relating to signal timings and time spent waiting in queues. The table to the right shows the total delay per vehicle at seven key intersections as well as the total network delay per vehicle. For the concepts with the 7th Street bridge (Concept D and E), the Baker Avenue/7th Street and Spokane Avenue/7th Street intersections were included in the analysis. The Spokane Avenue/7th Street was also included in the analysis for Concept G.

Concept D is projected to have the best intersection performance under future conditions. With the exception of the Baker Avenue/2nd Street intersection during the August PM peak, all intersections are projected to operate at LOS C or better. Besides Concept A, Concept F demonstrates the worst intersection performance during the August peak season followed by Concept G then Concept E. Concepts B through G perform similarly during the November peak season with about half the total intersection delay as Concept A. The Baker Avenue/2nd Street intersection demonstrates the worst performance in all scenarios which is a result of inadequate turn-bay lengths to accommodate projected traffic volumes.

LEVEL OF SERVICE (LOS)

A → **F**

BEST **WORST**

Intersection	Concept A		Concept B		Concept C		Concept D		Concept E		Concept F		Concept G	
	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS
2045 August PM Peak														
Spokane Ave/13th Street	120.5	F	26.7	C	30.2	C	22.5	C	22.7	C	72.2	E	32.8	C
Spokane Ave/7th Street	--	--	--	--	--	--	17.9	B	33.3	C	--	--	18.9	B
Spokane Ave/2nd Street	160.0	F	37.4	D	20.6	C	25.1	C	21.1	C	23.5	C	23.4	C
Central Ave/2nd Street	33.6	C	16.0	B	16.0	B	14.9	B	16.8	B	19.2	B	20.3	C
Baker Ave/2nd Street	259.9	F	139.3	F	142.3	F	125.6	F	173.0	F	223.2	F	209.3	F
Baker Ave/7th Street	--	--	--	--	--	--	27.1	C	49.4	D	--	--	--	--
Baker Ave/13th Street	200.1	F	35.4	D	52.3	D	15.9	B	18.7	B	86.5	F	56.0	E
Total Intersection Network Delay/Vehicle (s)	347.5		127.6		131.1		113.2		154.3		214.8		177.0	
2045 November AM Peak														
Spokane Ave/13th Street	74.0	E	40.1	D	32.0	C	26.0	C	22.2	C	36.2	D	36.1	D
Spokane Ave/7th Street	--	--	--	--	--	--	11.4	B	17.1	B	--	--	10.3	B
Spokane Ave/2nd Street	49.0	D	28.5	C	17.7	B	15.3	B	20.6	C	23.4	C	21.4	C
Central Ave/2nd Street	20.9	C	10.6	B	12.6	B	12.6	B	11.3	B	10.3	B	10.4	B
Baker Ave/2nd Street	66.4	E	39.9	D	36.4	D	33.0	C	37.0	D	40.2	D	40.5	D
Baker Ave/7th Street	--	--	--	--	--	--	15.7	B	19.6	B	--	--	--	--
Baker Ave/13th Street	51.3	D	20.0	B	22.2	C	10.7	B	10.7	B	29.6	C	24.7	C
Total Intersection Network Delay/Vehicle (s)	125.2		69.0		59.6		53.3		61.2		68.9		67.8	

ARTERIAL PERFORMANCE RESULTS

SUB-CRITERION 1B assesses the traffic operations of the arterials. It's important that the concept minimizes the average time required to travel between the Spokane Avenue/13th Street and Baker Avenue/2nd Street intersections. Travel time is a function of distance covered and speed traveled. Longer travel times are indicative of slower travel speeds and congested traffic conditions. The table below shows the average travel times for each concept. The score for this criterion was based on the combined travel time which was calculated by summing the average travel time required to travel in both the north and southbound directions.

Travel Time (s)	Concept A	Concept B	Concept C	Concept D	Concept E	Concept F	Concept G
2045 August PM Peak							
NB Average	409.2	214.7	173.1	181.2	242.6	235.1	233.5
SB Average	301.5	138.1	135.0	149.5	157.9	152.9	185.9
Combined Travel Time	**710.7**	**352.8**	**308.1**	**330.7**	**400.5**	**388.0**	**419.3**
2045 November AM Peak							
NB Average	194.4	169.9	159.1	143.4	159.6	159.9	169.6
SB Average	204.6	139.2	148.8	144.0	142.0	148.8	179.2
Combined Travel Time	**398.9**	**309.1**	**307.9**	**287.3**	**301.5**	**308.7**	**348.8**

ON AVERAGE, IT TAKES

100

SECONDS

TO TRAVEL THROUGH THE NETWORK **WITHOUT TRAFFIC**

Concepts C and D demonstrate the quickest travel times with the least amount of delay. The travel times for these concepts are similar during both the peak and off-peak seasons, indicating that the lane configurations can adequately accommodate traffic volumes year-round. The travel times in the north and southbound directions for these concepts are also more evenly balanced whereas the travel times in the northbound direction for Concepts B, E, F, and G are greater than the travel times in the southbound direction in during the August peak season. Concepts B, C, E, and F perform similarly during the November peak season.

NETWORK PERFORMANCE RESULTS

SUB-CRITERION 1C assesses the traffic operations of the network as a whole. It is important that the concept minimizes the additional delay experienced by vehicles as a result of traffic congestion. The metric used to evaluate this criterion is total network delay which is a summation of the additional time required to travel through the network beyond the time required to travel the length of the network at the posted speed. Delay is incurred while waiting in queues at intersections and when traffic volumes exceed available capacity causing congested travel conditions. The table below shows the average network delay experienced by vehicles for each concept.

Network Delay (s)	Concept A	Concept B	Concept C	Concept D	Concept E	Concept F	Concept G
2045 August PM Peak							
Total Delay/Vehicle (s)	450.3	150.6	153.3	125.4	172.9	260.2	211.0
2045 November AM Peak							
Total Delay/Vehicle (s)	135.3	81.7	65.9	58.1	66.1	74.3	74.5

FOR REFERENCE...

240 SECONDS = **4.0** MINUTES

Concept D demonstrates the best traffic operations during both the peak and off-peak seasons. Concepts F and G show more than 200 seconds of delay in August and about 75 seconds in November. On average, Concepts B and C are predicted to experience about 150 seconds of delay in August and between 65 and 80 seconds of delay in November. During periods of greater congestion, the third lane on Spokane Avenue (Concepts B, C, and D) between 13th Street and 2nd Street helps distribute traffic more evenly throughout the network resulting in lower delay per vehicle.

TRAFFIC SIMULATION - RESULTS

DOWNTOWN WHITEFISH
HIGHWAY STUDY

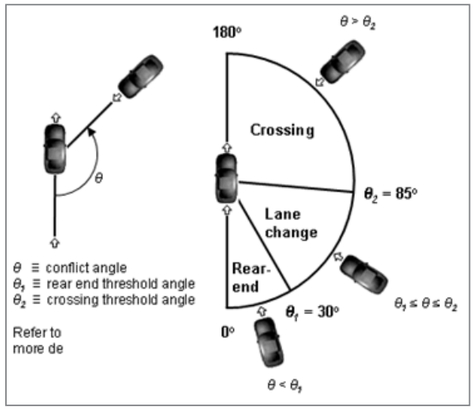
SAFETY PERFORMANCE RESULTS

SUB-CRITERION 2A assesses vehicle conflicts using FHWA's Surrogate Safety Assessment Model (SSAM). It is important that the concept demonstrates the ability to minimize potential conflicts between vehicles, thereby reducing the likelihood of crashes. The metric used to compare concepts is the summation of the path-crossing, rear-end, and lane-change vehicle conflicts.

A detailed safety analysis was performed to compare concepts using the SSAM. The software application identifies, classifies, and evaluates traffic conflicts from traffic simulation model outputs by processing vehicle trajectory data. The SSAM analysis process provides the location and dimensions of each vehicle in a simulation approximately every tenth of a second. The SSAM then analyzes vehicle-to-vehicle intersections to identify and catalog conflicts. Each conflict is classified as either path-crossing, rear-end, or lane-change. The table below tabulates the number of conflicts by type for each concept.

Conflict Type	Concept A	Concept B	Concept C	Concept D	Concept E	Concept F	Concept G
Path-Crossing	64	30	27	55	53	25	17
Rear-End	4,485	625	546	1,336	1,449	626	687
Lane-Change	213	31	43	56	50	29	39
Total Conflicts	**4,762**	**686**	**616**	**1,447**	**1,552**	**680**	**743**

All concepts show an improvement in safety over the existing configuration which shows nearly 4,500 rear-end conflicts due to congestion on Highway 93 and at the Baker Avenue/13th Street intersection. Concepts B, C, F, and G perform similarly, show the best improvement, and show the fewest number of rear-end conflicts likely due to decreased congestion and better intersection operations. Concepts D and E show the least amount of improvement and the highest number of rear-end conflicts, due to the new signalized intersections at 7th Street and unchanged configuration at Baker Avenue/13th Street.



Source: SSAM Software User Manual, FHWA-HRT-08-050, May 2008

FUEL CONSUMPTION & EMISSIONS RESULTS

SUB-CRITERION 5D assesses the environmental impacts of the concept as a result of traffic operations. It is important that concepts reduce air pollutants and minimize the amount of fuel used by vehicles traveling through the network. *Synchro* reports estimates for various pollutants emitted by traveling vehicles, however, these metrics are based on fuel consumption and the assumption that a certain volume of emissions is generated per each gallon of fuel. For this reason, the metric used to evaluate this criterion is the average fuel used by each vehicle, measured in ounces. Fuel consumption is a function of total vehicle miles traveled, total delay, total stops, and travel speed. More fuel is consumed when vehicles are idling and when vehicles are frequently stopping and starting as is common in congested traffic conditions. The table below shows the total fuel consumed by vehicles for each concept.

Fuel Consumption	Concept A	Concept B	Concept C	Concept D	Concept E	Concept F	Concept G
2045 August PM Peak							
Fuel Used (oz/veh)	7.90	5.85	5.78	5.72	5.99	6.57	6.28
2045 November AM Peak							
Fuel Used (oz/veh)	5.59	5.24	5.06	4.76	4.96	5.14	5.17

Concept D is shown to use the least amount of fuel under both peak conditions due to efficient traffic operations. Concept A demonstrates the worst fuel efficiency. Concepts B and C are similar in estimated fuel efficiency and demonstrate more similar fuel efficiencies during the peak and off-peak seasons. This means that although the options may not be the most fuel efficient, the concepts do perform well year-round with less fluctuation during peak seasons. Concepts F and G demonstrate improved fuel efficiency over existing conditions with slightly more fluctuation between peak seasons compared to other concepts.

KEY TAKEAWAYS

2ND STREET/BAKER AVENUE INTERSECTION

Modeling shows that the existing turn bays at the intersection are too short to accommodate future traffic volumes. Inadequate storage space leads to lane starvation which impacts operations at neighboring intersections. Modeling also indicates the critical need for a westbound right-turn lane.

SPOKANE AVENUE

The traffic simulations demonstrate a need for a second northbound lane on Spokane Avenue. To adequately accommodate future traffic volumes, it is beneficial to balance the two southbound lanes on Baker Avenue with two northbound lanes on Spokane Avenue.

2ND STREET/SPOKANE AVENUE INTERSECTION

Adding a second westbound lane on 2nd Street requires split phase signal timing at the 2nd Street/ Spokane Avenue intersection. This signal timing is inefficient and not effective at improving network operations.

7TH STREET BRIDGE

When paired with two northbound lanes on Spokane Avenue, the 7th Street bridge is shown to improve operations in the network by reducing overall travel time and intersection delay. The couplet configuration that the 7th Street bridge provides improved overall circulation Downtown.

13TH STREET/BAKER AVENUE INTERSECTION

In order for the 13th Street/Baker Avenue intersection to operate efficiently, dedicated left- and right-turn bays are needed on the westbound leg. In order to accommodate these turn bays, additional right-of-way would be required on 13th Street.

LEVEL II SCREENING - PART A

DOWNTOWN WHITEFISH
HIGHWAY STUDY

Each concept is screened using the three criteria shown below. Three to four sub-criteria further define the criteria. Each sub-criteria can receive a maximum score of 5 points. The screening is separated into two parts: Part A and Part B. The purpose of Part A is to determine whether the concept meets the purpose and need of the National Highway System, and whether the concept is feasible to implement. A concept is considered to meet the purpose and need of the NHS if the total score for the criteria category is equal to 50 percent of the total possible points or greater. A concept must satisfy this requirement for each criteria 1 through 3. If the concept does not satisfy this requirement, it does not advance to Part B. The criteria for Part A are summarized below.

0
Does Not Address Criteria

↕

5
Fully Addresses Criteria

PART A SCREENING

CRITERION 1: OPERATIONS

1a. Intersection Performance: Optimizes vehicular traffic operations at major intersections as measured by total intersection delay

1b. Travel Time: Minimizes average time required to travel between Spokane/13th and Baker/2nd as measured by combined north/south travel time

1c. Total Network Delay: Minimizes additional travel time experienced by network users beyond that required to travel at desired speed as measured by total network delay per vehicle

1d. Large Truck Accommodations: Optimizes ability for trucks to travel through Downtown Whitefish based on number of turns, overtracking, routing through Downtown

→ Does the concept meet the **OPERATIONAL NEEDS** of the National Highway System? *(Must score 10 or more points)*

CRITERION 2: SAFETY

2a. Vehicle Conflicts: Minimizes potential conflicts between vehicles as measured by total path-crossing, rear-end, and lane-change conflicts

2b. Pedestrian Exposure: Minimizes conflict exposure for pedestrians based on crossing distances, protection provided by buffer areas, conflicts with trucks, intersection treatments, and protected crossing movements

2c. Bicycle Exposure: Minimizes conflict exposure for bicyclists based on protection provided by buffer areas, conflicts with trucks, intersection treatments, and protected crossing movements

→ Does the concept meet the **SAFETY NEEDS** of the National Highway System? *(Must score 8 or more points)*

CRITERION 3: IMPLEMENTATION

3a. Capital Cost: Minimizes total cost of construction

3b. Ongoing Maintenance: Minimizes maintenance performance relating to snow removal and storage, equipment and labor needs

3c. Funding Availability: Maximizes potential funding sources and funding ability

→ Is the concept **IMPLEMENTABLE** as part of the National Highway System? *(Must score 8 or more points)*

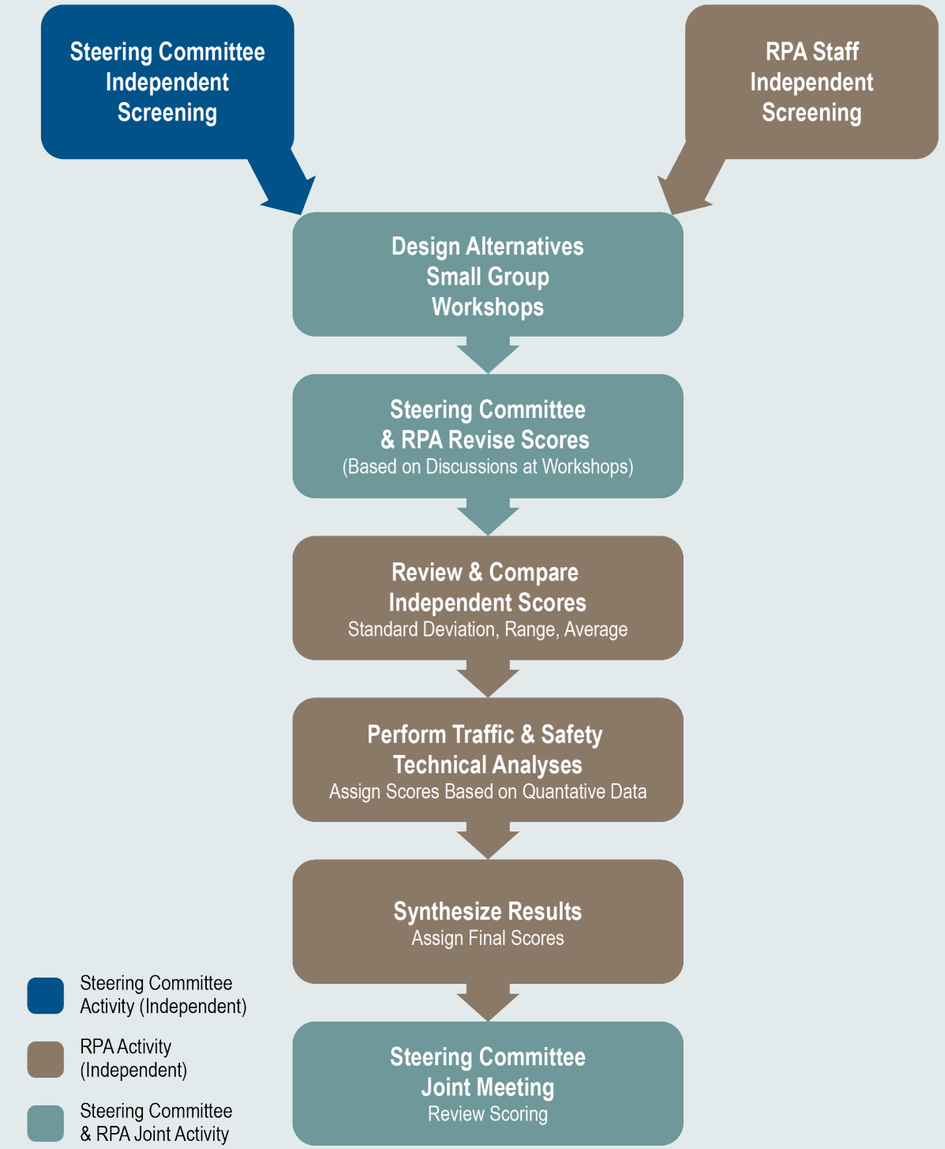
Is the concept feasible and does it meet the purpose and need of the National Highway System?

The purpose of the National Highway System (NHS) is to "provide an interconnected system of principal arterial routes which will serve major population centers, international border crossings, ports, airports, public transportation facilities, and other intermodal transportation facilities and other major travel destinations." -Intermodal Surface Transportation Efficiency Act of 1991

Projects eligible to receive NHS funds must support progress toward the achievement of national performance goals for "improving infrastructure condition, safety, congestion reduction, system reliability, or freight movement on the NHS". -23 U.S. Code § 119(d)(1)(A), National Highway Performance Program

SCREENING PROCESS

The scores presented on the following pages are a result of both qualitative and quantitative assessments of the concepts. For the qualitative assessments, scores were derived from a synthesis of input from the project team. Although there is inherently some subjectivity contained in the qualitative assessments, the final scores are intended to reflect a variety of perspectives from stakeholders. Technical analyses were conducted to quantitatively assign scores for criteria primarily relating to operations, safety, and vehicle emissions/fuel consumption. These analyses were incorporated to reduce subjectivity and demonstrate the overall performance of each concept regarding the NHS performance goals. The steps involved in the screening process are shown below.

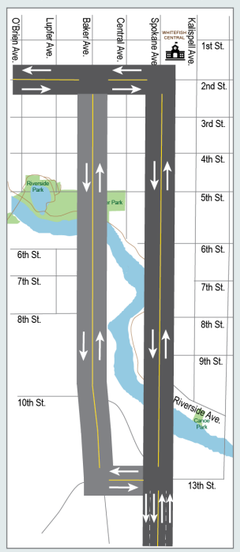


CRITERION 1: OPERATIONS

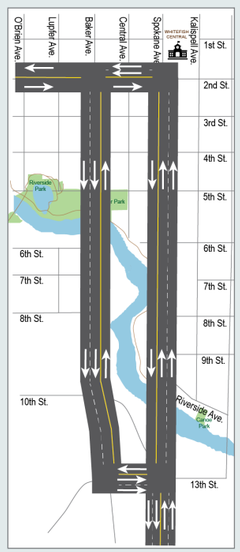
DOWNTOWN WHITEFISH
HIGHWAY STUDY

CRITERION 1: OPERATIONS

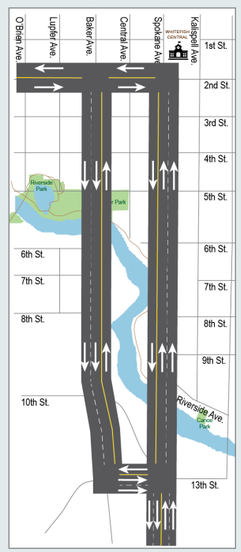
CONCEPT A:
EXISTING CONFIGURATION (RECONSTRUCTED)



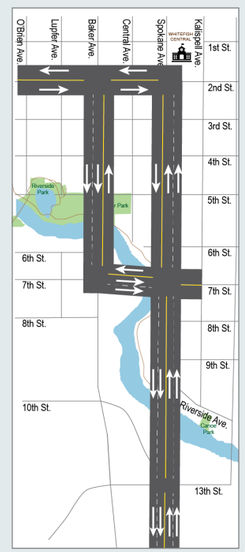
CONCEPT B:
ALTERNATIVE C (OFFSET)



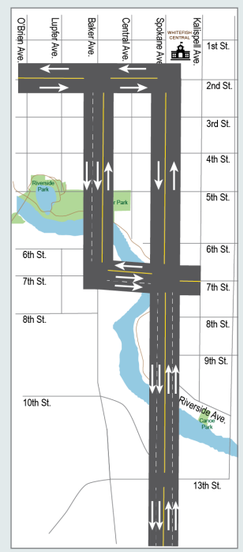
CONCEPT C:
MODIFIED ALTERNATIVE C (OFFSET)



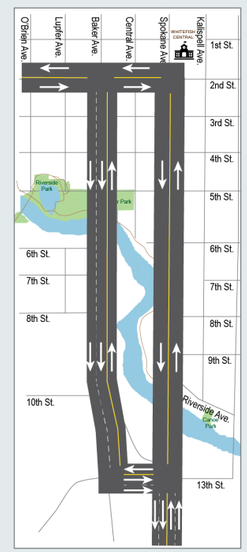
CONCEPT D:
CONTRA-FLOW CONFIGURATION



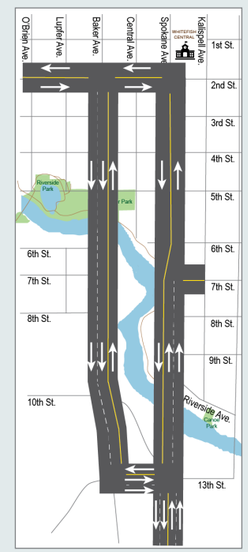
CONCEPT E:
2018 MP CONFIGURATION - CONTRA-FLOW



CONCEPT F:
2018 MP CONFIGURATION - MODIFIED ALT C (OFFSET)



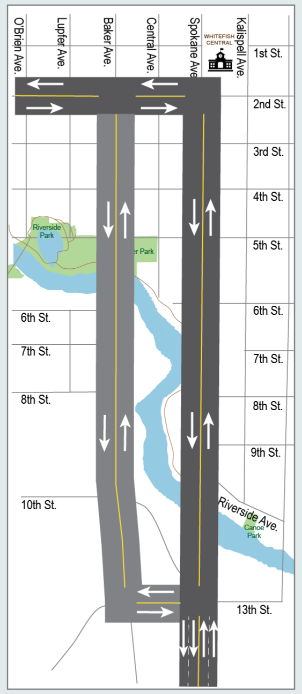
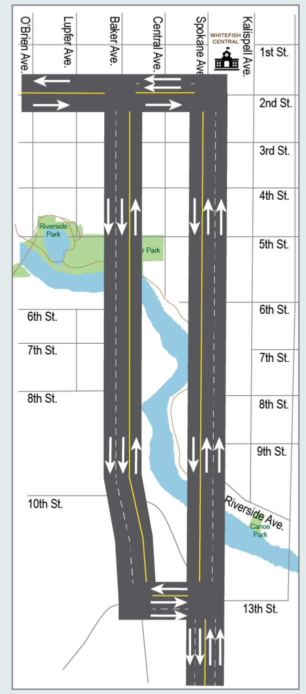
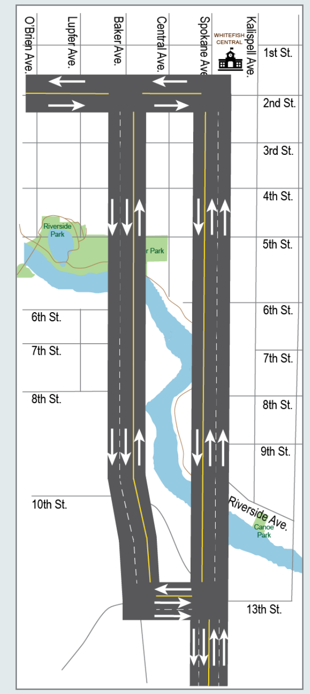
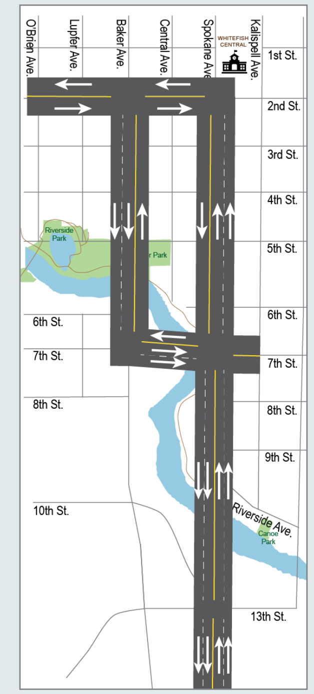
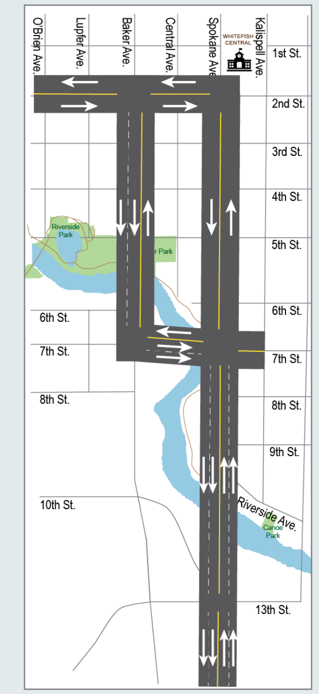
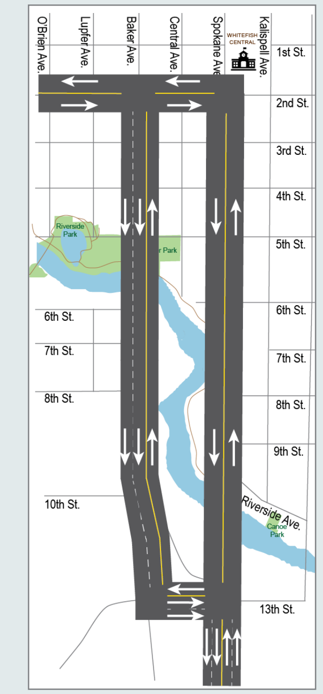
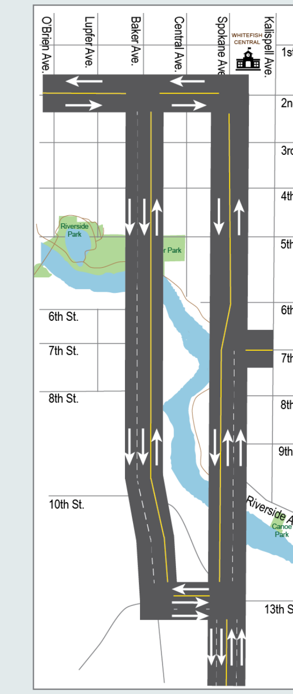
CONCEPT G:
2-LANE / 3-LANE HYBRID



	CONCEPT A	CONCEPT B	CONCEPT C	CONCEPT D	CONCEPT E	CONCEPT F	CONCEPT G
1A. INTERSECTION PERFORMANCE	**0** Most delay during both seasons due to inadequate capacity to accommodate demand. About 2.75 times more delay in August than November.	**4** Similar operations to Concept C. About 15 percent more delay in August and 30 percent more delay in November compared to Concept D.	**4** About 10-15 percent more intersection delay compared to Concept D but comparable to Concept B in August and about 15 percent less delay in November.	**5** Least amount of intersection delay during both peak and off-peak seasons.	**4** About 40 percent more delay in August and about 15 percent more delay in November compared to Concept D.	**2** About 40 percent reduction in delay in August and half the delay in November compared to Concept A.	**3** Similar operations to Concept F in November and about 20 percent overall reduction in intersection delay in August.
1B.TRAVEL TIME	**1** Longest travel times during both peak hours due to inadequate capacity to accommodate future traffic demands.	**4** Slightly longer travel times than Concepts C and D. Similar north and southbound travel times in November but some fluctuation between seasons.	**4** Shortest travel times during August peak, third shortest during November but both are about 308 seconds. North and southbound times are relatively balanced.	**4** Shortest travel times during November peak, second fastest during August. North and southbound times are relatively balanced.	**3** Long travel times during August peak season, shorter travel times in November. In August northbound travel time is greater than southbound travel time.	**3** Longer travel times during both peak seasons compared to other concepts. Northbound travel times are greater than southbound due to lane imbalance.	**2** Longer travel times during both peak seasons compared to other concepts. Northbound travel times are greater than southbound due to lane imbalance.
1C. TOTAL NETWORK DELAY	**0** Most delay during both peak and off-peak seasons. About 3.5 times more delay in August than November.	**3** Similar delay to Concept C during August but about 25 percent more delay during November.	**4** About 20 percent more delay in August and 15 percent more delay in November compared to Concept D.	**5** Least amount of delay of all concepts during both peak and off-peak seasons.	**4** About 15 percent more delay experienced during November than Concept D and approximately 40 percent more delay during August.	**2** About half the delay experienced during both peak season compared to the existing configuration (Concept A).	**2** Similar delay to Concept F during November but about 20 percent less delay during August.
1D. LARGE TRUCK ACCOMMODATIONS	**1** Trucks are discouraged from Baker Avenue and have to travel through Downtown to reach destinations.	**4** Trucks may use Baker Avenue. Additional capacity is provided on 2nd Street. Longer turn bays are provided at the Baker Avenue/2nd Street intersection.	**3** Trucks may use Baker Avenue. Longer turn bays are provided on 2nd Street. Two northbound lanes provided on Spokane Avenue.	**3** Trucks may use Baker Avenue between 2nd Street and 7th Street. Two or more northbound lanes provided on sections of Spokane Avenue.	**3** Trucks may use Baker Avenue but one lane on Spokane Avenue north of 7th Street can be restrictive to truck traffic. Longer turn bays are provided on 2nd Street.	**2** Trucks may use Baker Avenue but one lane on Spokane Avenue can be restrictive to truck traffic. Longer turn bays are provided on 2nd Street.	**3** Trucks may use Baker Avenue but one lane on Spokane Avenue north of 7th Street can be restrictive to truck traffic. Longer turn bays are provided on 2nd Street.
SUBTOTAL Does the concept meet the operational needs of the NHS? *(Minimum score: 10 of 20 points)*	**2** NO	**15** YES	**15** YES	**17** YES	**14** YES	**9** NO	**10** YES

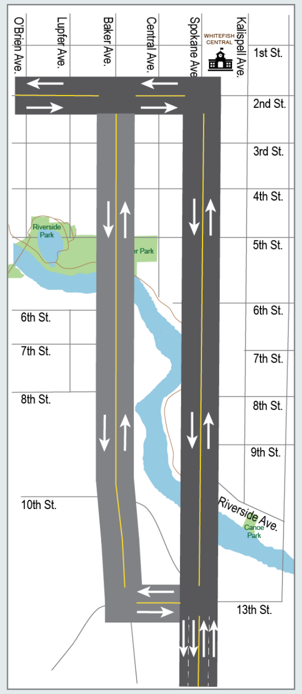
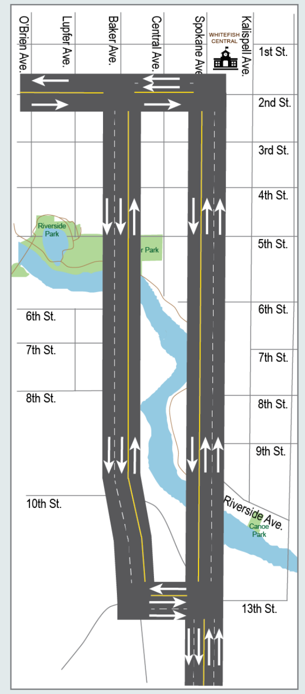
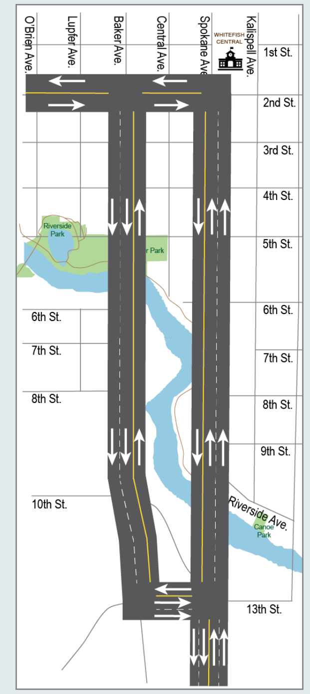
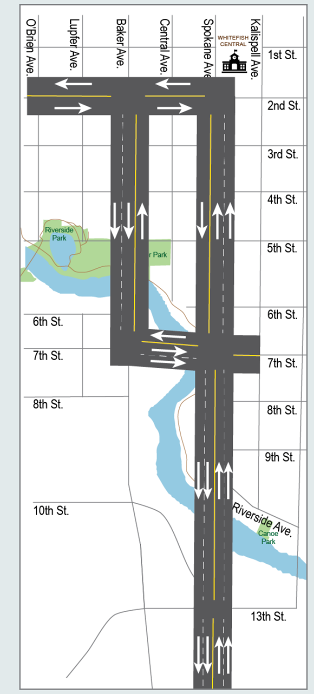
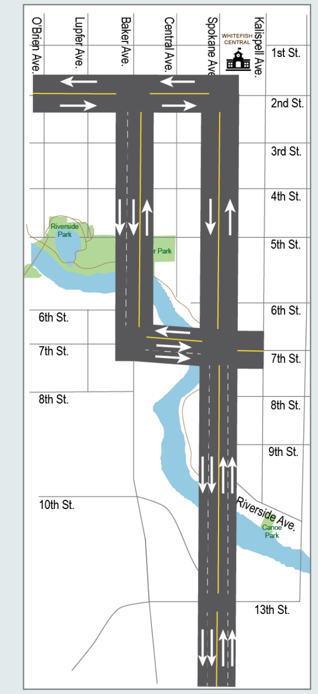
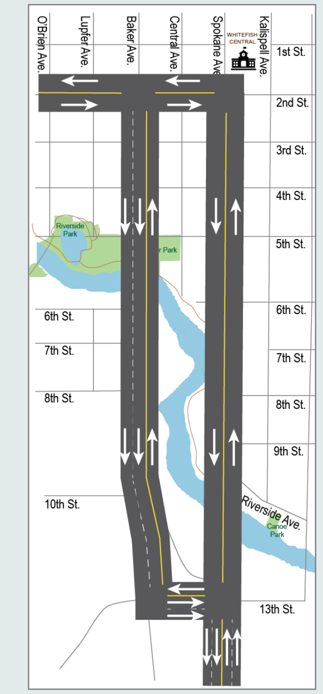
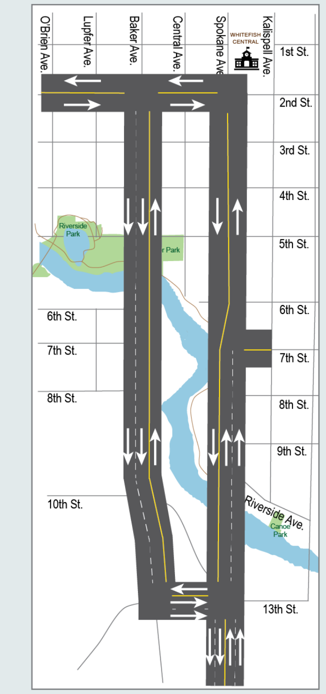
CRITERION 2: SAFETY

DOWNTOWN WHITEFISH
HIGHWAY STUDY

CRITERION 2: SAFETY	CONCEPT A: EXISTING CONFIGURATION (RECONSTRUCTED)	CONCEPT B: ALTERNATIVE C (OFFSET)	CONCEPT C: MODIFIED ALTERNATIVE C (OFFSET)	CONCEPT D: CONTRA-FLOW CONFIGURATION	CONCEPT E: 2018 MP CONFIGURATION - CONTRA-FLOW	CONCEPT F: 2018 MP CONFIGURATION - MODIFIED ALT C (OFFSET)	CONCEPT G: 2-LANE / 3-LANE HYBRID
							
2A. VEHICLE CONFLICTS	**0** Highest number of potential conflicts, especially rear-end conflicts likely related to congestion and all-way stop at Baker Avenue/13th Street.	**4** Similar safety performance to Concept F but with 6 more potential conflicts.	**4** Fewest number of potential conflicts, improved operations reduces congestion and likelihood of rear-end conflicts compared to other concepts.	**2** Approximately double the number of potential conflicts compared to Concept G.	**2** Approximately 1/3 of the potential conflicts compared to Concept A. Slightly fewer lane-change and path-crossing conflicts than Concept D but about 100 more rear-end conflicts.	**4** Second least number of potential conflicts. Fewest lane-change conflicts potentially due to two-lane configuration on Spokane Avenue.	**3** More potential conflicts than Concepts B, C, and F with more rear-end conflicts potentially due to lane drop at Spokane Avenue/7th Street intersection. Fewest number of potential path-crossing conflicts.
2B. PEDESTRIAN EXPOSURE	**3** No change to existing conditions. Trucks must must travel through Downtown using Spokane Avenue and 2nd Street due to restrictions on Baker Avenue resulting in potential for pedestrian/truck conflicts.	**3** Greater number of lanes requires longer pedestrian crossing distances; some trucks diverted from Downtown corridors by allowing truck use on Baker Avenue; curb bulbouts are unlikely Downtown.	**3** Longer pedestrian crossing distances on three lane segments; 2nd Street/Baker Avenue intersection expanded to accommodate turn lanes increasing potential for pedestrian/truck conflict.	**3** Longer pedestrian crossing distances required on four-lane segments of Spokane Avenue.	**3** Longer pedestrian crossing distances required on four-lane segments of Spokane Avenue. More congestion Downtown increases exposure. Shorter crossing distances and curb bulbouts can be accommodated Downtown.	**3** Longer pedestrian crossing distances on three lane segments; 2nd Street/ Baker Avenue intersection expanded increasing potential for pedestrian/ truck conflict. Moves trucks to Baker Avenue. Some concern that fewer lanes will increase congestion and pedestrian exposure.	**3** Longer pedestrian crossing distances on three lane segments; 2nd Street/Baker Avenue intersection expanded increasing potential for pedestrian/truck conflict. Some concern that fewer lanes will increase congestion and pedestrian exposure.
2C. BICYCLE EXPOSURE	**1** No change to existing conditions. Trucks must travel through Downtown using Spokane Avenue and 2nd Street due to restrictions on Baker Avenue. No bike accommodations on Spokane Avenue.	**4** Some trucks diverted from Downtown corridors by allowing truck use on Baker Avenue and space available for dedicated bicycle facilities.	**4** Some trucks diverted from Downtown corridors by allowing truck use on Baker Avenue and space available for dedicated bicycle facilities.	**3** Four-lane segment of Spokane Avenue reduces available space for bike accommodations. Some trucks diverted from Downtown corridors by allowing truck use on Baker Avenue and space available for dedicated bicycle facilities.	**3** Four-lane segment of Spokane Avenue reduces available space for bike accommodations but fewer lanes on Spokane Avenue increases available space for bike accommodations. More congestion Downtown increases exposure.	**4** Fewer lanes on Spokane Avenue increases available space for bike accommodations. Some concern that fewer lanes will increase congestion and bike exposure.	**4** Fewer lanes on Spokane Avenue increases available space for bike accommodations. Some concern that fewer lanes will increase congestion and bike exposure.
SUBTOTAL	**4**	**11**	**11**	**8**	**8**	**11**	**10**
Does the concept meet the safety needs of the NHS? *(Minimum score: 8 of 15 points)*	**NO**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**

CRITERION 3: IMPLEMENTATION

DOWNTOWN WHITEFISH
HIGHWAY STUDY

CRITERION 3: IMPLEMENTATION	CONCEPT A: EXISTING CONFIGURATION (RECONSTRUCTED)	CONCEPT B: ALTERNATIVE C (OFFSET)	CONCEPT C: MODIFIED ALTERNATIVE C (OFFSET)	CONCEPT D: CONTRA-FLOW CONFIGURATION	CONCEPT E: 2018 MP CONFIGURATION - CONTRA-FLOW	CONCEPT F: 2018 MP CONFIGURATION - MODIFIED ALT C (OFFSET)	CONCEPT G: 2-LANE / 3-LANE HYBRID
							
3A. CAPITAL COST	5	3	3	0	0	4	3
	Least costly concept to implement, only requires resurfacing, no major construction.	Concept requires full reconstruction of 2nd Street as well as full build out of Spokane Avenue, Baker Avenue, and 13th Street complete with bicycle and pedestrian facilities.	Concept requires some reconstruction of 2nd Street to accommodate lengthened turn bays, as well as full build out of Spokane Avenue, Baker Avenue, and 13th Street complete with bicycle and pedestrian facilities.	7th Street bridge is very costly to implement. The concept also requires some reconstruction of 2nd Street as well as full build out of Spokane Avenue and some of Baker Avenue to accommodate desired bicycle and pedestrian facilities.	7th Street bridge is very costly to implement. The concept also requires full build out of Spokane Avenue and some of Baker Avenue to accommodate desired bicycle and pedestrian facilities.	Concept requires some reconstruction of 2nd Street to accommodate lengthened turn bays, and requires less construction on Spokane Avenue. Full build out is required on Baker Avenue and 13th Street.	Concept requires some reconstruction of 2nd Street to accommodate lengthened turn bays, as well as full build out is required on Baker Avenue,13th Street, and some of Spokane Avenue.
3B. ONGOING MAINTENANCE	4	3	3	1	1	3	3
	Resurfacing extends life of pavement. Fewer lanes allows more room for buffers to accommodate snow storage, Downtown curb bulbouts complicate plowing; no new facilities requiring specialized equipment.	Most NHS lane miles to maintain; some buffer provided for snow storage; shared use path (or similar facility) would require specialized equipment to maintain.	Second most NHS lane miles to maintain; some buffer provided for snow storage; Downtown curb bulbouts complicate plowing; shared use path (or similar facility) would require specialized equipment to maintain.	Significant maintenance required for 7th Street bridge; some buffer provided for snow storage; shared use path (or similar facility) would require specialized equipment to maintain.	Significant maintenance required for 7th Street bridge; some buffer provided for snow storage; Downtown curb bulbouts complicate plowing; shared use path (or similar facility) would require specialized equipment to maintain.	Some buffer provided for snow storage; Downtown curb bulbouts complicate plowing; shared use path (or similar facility) would require specialized equipment to maintain.	Some buffer provided for snow storage; Downtown curb bulbouts complicate plowing; shared use path (or similar facility) would require specialized equipment to maintain.
3C. FUNDING AVAILABILITY	3	4	4	0	0	0	2
	Some maintenance funding may be available. Local funds would likely be required for any improvements to Baker Avenue as it would not be considered part of the NHS.	Baker becomes part of the NHS. Concept meets the needs of the NHS and is likely eligible for federal funds.	Baker becomes part of the NHS. Concept meets the needs of the NHS and is likely eligible for federal funds.	7th Street bridge is expensive and is not viewed as necessary to meet the needs of the NHS. Concept is likely not fully fundable with federal funds.	7th Street bridge is expensive and is not viewed as necessary to meet the needs of the NHS. Concept is likely not fully fundable with federal funds.	Does not meet the operational needs of the NHS and is therefore unlikely to be fully fundable with federal funds.	Less costly than Concepts B and C but provides less benefit to the existing NHS and is therefore less likely to be prioritized for federal funding.
SUBTOTAL	12	10	10	1	1	7	8
Is the concept implementable as part of the NHS? *(Minimum score: 8 of 15 points)*	YES	YES	YES	NO	NO	NO	YES

LEVEL II SCREENING - PART A SUMMARY

DOWNTOWN WHITEFISH HIGHWAY STUDY

Screening Criteria		Sub Criteria		Possible Points	Concept A Score	Concept B Score	Concept C Score	Concept D Score	Concept E Score	Concept F Score	Concept G Score
1	Operations	1a.	Intersection Performance	5	0	4	4	5	4	2	3
		1b.	Travel Time	5	1	4	4	4	3	3	2
		1c.	Total Network Delay	5	0	3	4	5	4	2	2
		1d.	Large Truck Accommodations	5	1	4	3	3	3	2	3
OPERATIONS SUBTOTAL				**20**	**2**	**15**	**15**	**17**	**14**	**9**	**10**
Does the concept meet the **operational needs** of the National Highway System?				[YES / NO]	NO	YES	YES	YES	YES	NO	YES
2	Safety	2a.	Vehicle Conflicts	5	0	4	4	2	2	4	3
		2b.	Pedestrian Exposure	5	3	3	3	3	3	3	3
		2c.	Bicycle Exposure	5	1	4	4	3	3	4	4
SAFETY SUBTOTAL				**15**	**4**	**11**	**11**	**8**	**8**	**11**	**10**
Does the concept meet the **safety needs** of the National Highway System?				[YES / NO]	NO	YES	YES	YES	YES	YES	YES
3	Implementation	3a.	Capital Cost	5	5	3	3	0	0	4	3
		3b.	Ongoing Maintenance	5	4	3	3	1	1	3	3
		3c.	Funding Availability	5	3	4	4	0	0	0	2
IMPLEMENTATION SUBTOTAL				**15**	**12**	**10**	**10**	**1**	**1**	**7**	**8**
Is the concept **implementable** as part of the National Highway System?				[YES / NO]	YES	YES	YES	NO	NO	NO	YES
Is the concept feasible and does it meet the purpose & need of the NHS?				**[YES / NO]**	NO	YES	YES	NO	NO	NO	YES
LEVEL IIA SUBTOTAL *(IF YES TO ALL ABOVE QUESTIONS)*				**50**	N/A	**36**	**36**	N/A	N/A	N/A	**28**

Concepts B, C, D, E, and G demonstrate operations which satisfy the needs of the NHS. Concept D received the highest scores (18 out of 20 possible points) because it is projected to best accommodate future traffic demands with optimal performance. While Concept B shows slightly worse traffic performance, it better accommodates trucks, especially on 2nd Street, and still adequately accommodates future traffic volumes. Concepts A and F scored fewer than the 10 points required to demonstrate ability to meet the operational needs of the NHS. These two concepts incur the most delay and demonstrate failing traffic operations during both the peak and off-peak seasons. By providing only one northbound lane on Spokane Avenue through the Downtown core, Concepts E, F, and G show reduced operational benefits.

All Concepts except A satisfy the safety needs of the NHS. While there are inherently tradeoffs between the number of lanes needed to efficiently and safely move vehicles and the amount of space available to accommodate pedestrian and bicycle needs in a safe manner, Concepts B, C, F, and G best demonstrate an adequate balance of these needs. Concept A prioritizes vehicle travel and parking over bicycle accommodations and routes trucks through the Downtown core creating a less comfortable space for non-motorists. The poor operations of Concept A also contribute to greater likelihood of vehicle conflicts.

Concepts D and E are not considered to be feasible to implement due to high capital cost, ongoing maintenance needs, and limited funding availability. These two concepts include a very costly 7th Street bridge without demonstrating exceptional operational and safety benefits to justify the cost. Concept F does not meet the operational needs of the NHS so it is unlikely to be funded with federal dollars. All other concepts have reasonable capital costs and do not have unreasonable maintenance needs. Concepts B and C are likely easier to fund since they best meet operational and safety needs on the existing NHS. Concept G meets the minimum screening criteria for operations and safety, but is shown to provide less benefit to the NHS than Concepts B and C and is therefore less likely to be prioritized for federal funding.

CONCEPTS B, C, AND G ARE ADVANCED TO LEVEL II PART B SCREENING

The purpose of the National Highway System is to "provide an interconnected system of principal arterial routes which will serve major population centers, international border crossings, ports, airports, public transportation facilities, and other intermodal transportation facilities and other major travel destinations." -Intermodal Surface Transportation Efficiency Act of 1991

Projects eligible to receive NHS funds must support progress toward the achievement of national performance goals for "improving infrastructure condition, safety, congestion reduction, system reliability, or freight movement on the NHS". -23 U.S. Code § 119(d)(1)(A), National Highway Performance Program

ADVANCE to Part B Screening

LEVEL II SCREENING - PART B

DOWNTOWN WHITEFISH
HIGHWAY STUDY

The concepts advanced from Part A of the Level II Screening are considered feasible to implement and demonstrate that they meet the purpose and need of the NHS. Part B criteria are intended to recognize the specific Downtown context through which the Highway 93 facility traverses and ensure consideration is given to the community's interests and needs, in addition to the requirements associated with an NHS facility. Part B provides an assessment of multimodal accommodations, environment and character, and economic vitality. As in Part A, each criteria is further defined by three to four sub-criteria which can each receive a maximum score of 5 points. There is no minimum score required to advance and the concept with the highest total score is considered the preferred concept. The criteria for Part B are summarized below.

0
Does Not Address Criteria

5
Fully Addresses Criteria

PART B SCREENING

Complete Only For Concepts Advanced From Part A

CRITERION 4: MULTIMODAL ACCOMMODATIONS

4a. Pedestrian Comfort Level: Serves pedestrians based on potential for pedestrian facilities and crossing treatments

4b. Bicycle Comfort Level: Serves bicyclists based on potential for bike facilities and crossing treatments

4c. Multimodal Connectivity: Provides connections to planned pedestrian/bicycle facilities and destinations

CRITERION 5: ENVIRONMENT AND CHARACTER

5a. Natural Environment: Minimizes impacts at water body crossings to fisheries, habitat, and wetlands; ability to support street trees based on presence/width of landscaped boulevard

5b. Built Environment: Minimizes impacts to buildings/structures and adjacent right-of-way

5c. Context Sensitivity: Aligns with Downtown Whitefish's character and ability to accommodate all modes based on aesthetics, street trees and landscaped buffers, bicycle/pedestrian accommodations, and travel lanes

5d. Vehicle Emissions and Fuel Consumption: Reduces air pollutants and fuel consumption from vehicles as measured by total fuel used per vehicle

CRITERION 6: ECONOMIC VITALITY

6a. Business Access and Parking: Minimizes impacts to driveways and on-street parking spaces in the downtown core

6b. Impacts to Adjacent Land Use: Minimizes impacts to property function based on comfort and noise associated with proximity of travel ways to residential and commercial frontages

6c. Economic Impacts During Construction: Minimizes disruption anticipated during construction based on delay, routing options, duration, road closures, and business access

TYPICAL SECTION IDENTIFICATION

For comparison purposes, the best-performing typical sections were identified for corridor segments to illustrate the type of features that could realistically fit within the available right-of-way for each concept. Typical sections included varying combinations of vehicle travel lanes, on-street parking, curb and gutter, bike facilities, pedestrian facilities, and landscaped boulevards. The typical sections are intended as a starting point to help visualize how concepts can address the Part B screening criteria. After a preferred concept is identified, the typical sections will be refined during the design process. The steps involved in identifying the best-performing typical sections are shown below.

REVIEW
- → Past Planning Documents
- → State & Local Design Standards
- → As-Built Plans & Property Records for Right-of-Way Boundaries

DEVELOP
Typical Sections for Corridor Segments
(Spokane, Baker, 2nd, 7th, 13th)
- → Lane Configurations
- → On-Street Parking
- → Pedestrian Facilities
- → Landscaped Boulevards
- → Bicycle Facilities
- → Shoulder/Curb & Gutter

SCREEN
SCREENING COMPLETED TWO WAYS:

1) By Typical Section *(Screening based on amenities provided on each segment)*

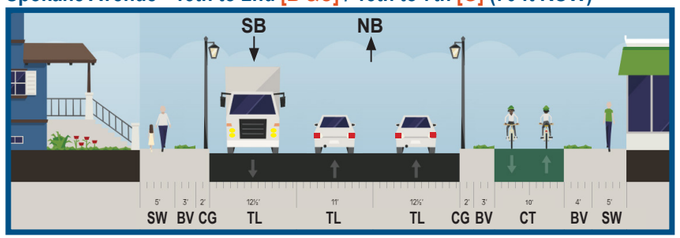
2) By Lane Configuration Concept *(Screening for criteria which are dependent on number of lanes only; screened prior to traffic simulations)*

IDENTIFY
Best performing/highest scoring typical sections for each corridor segment to aid concept screening for Part B

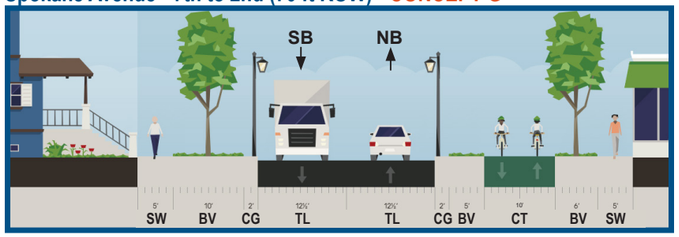
BL - Bike Lane **CG** - Curb and Gutter **PK** - Parking **SW** - Sidewalk
BV - Boulevard **CT**- Cycle Track **SUP** - Shared Use Path **TL** - Travel Lane

EXAMPLE TYPICAL SECTIONS - CONCEPTS B, C, & G

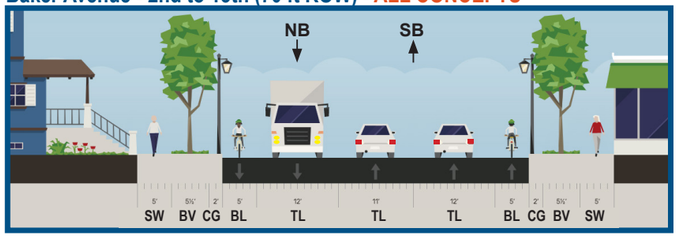
Spokane Avenue - 13th to 2nd [B &C] / 13th to 7th [G] (70 ft ROW)



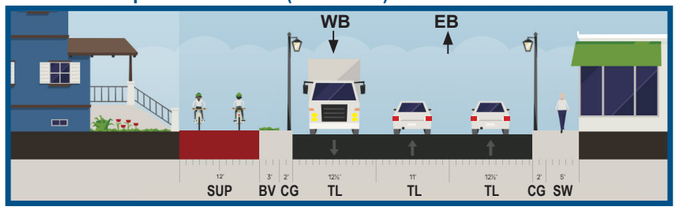
Spokane Avenue - 7th to 2nd (70 ft ROW) - CONCEPT G



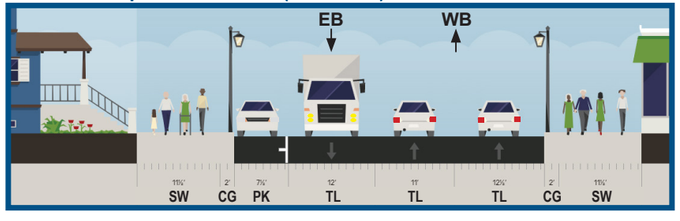
Baker Avenue - 2nd to 13th (70 ft ROW) - ALL CONCEPTS



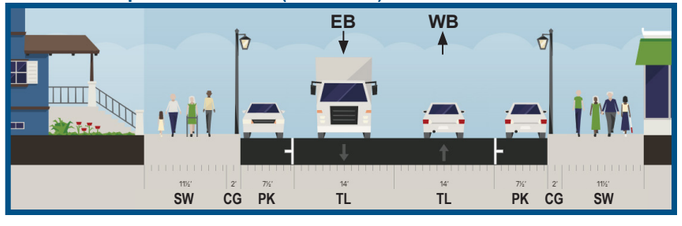
13th Street - Spokane to Baker (60 ft ROW) - ALL CONCEPTS



2nd Street - Spokane to Baker (70 ft ROW) - CONCEPT B



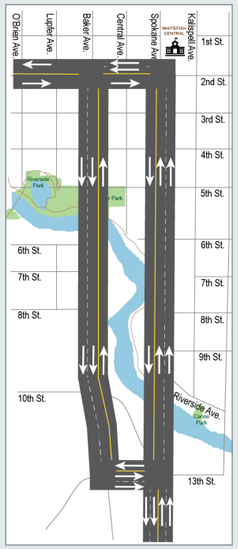
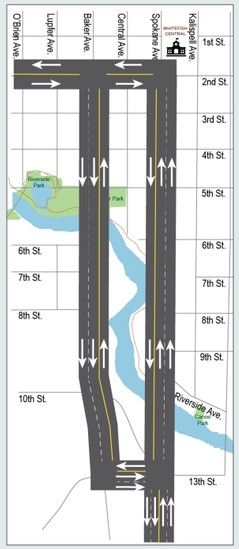
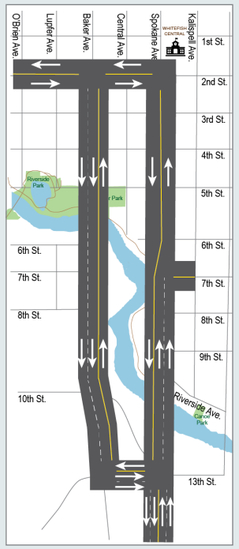
2nd Street - Spokane to Baker (70 ft ROW) - CONCEPT C & G



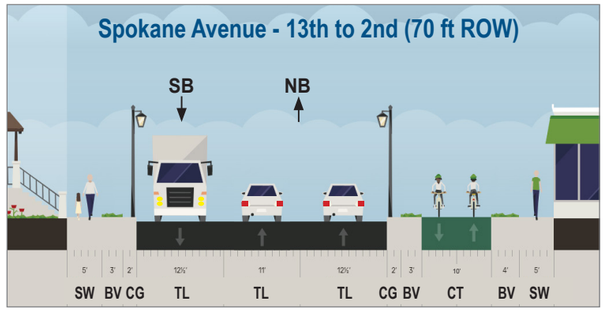
CRITERION 4: MULTIMODAL ACCOMMODATIONS

DOWNTOWN WHITEFISH HIGHWAY STUDY

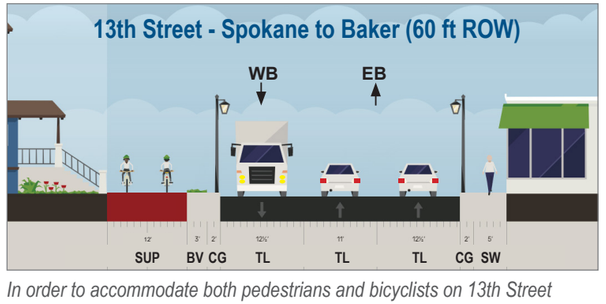
CRITERION 4: MULTIMODAL ACCOMMODATIONS

	CONCEPT B: ALTERNATIVE C (OFFSET)	CONCEPT C: MODIFIED ALTERNATIVE C (OFFSET)	CONCEPT G: 2-LANE / 3-LANE HYBRID
			
4A. PEDESTRIAN COMFORT LEVEL	**2** Longer crossing distances due to more lanes, curb bulbouts are unlikely Downtown, and sidewalks with some buffers could be provided. Shared bicycle/ pedestrian facility could be accommodated on 13th Street.	**3** Longer crossing distances due to more lanes, curb bulbouts remain at 2nd Street/Central Avenue, and sidewalks with some buffers could be provided. Shared bicycle/pedestrian facility could be accommodated on 13th Street.	**4** Longer crossing distances due to more lanes, curb bulbouts remain at 2nd Street/Central Avenue, and sidewalks with some buffers could be provided. Slightly larger buffers can be provided on Spokane Avenue between 7th and 2nd Streets. Shared bicycle/pedestrian facility could be accommodated on 13th Street.
4B. BICYCLE COMFORT LEVEL	**4** Bike lanes could be provided on Baker Avenue, space for a cycle track on Spokane Avenue, and shared bicycle/pedestrian facility could be accommodated on 13th Street. There is some extra space that could be used to provide buffers.	**4** Bike lanes could be provided on Baker Avenue, space for a cycle track on Spokane Avenue, and shared bicycle/pedestrian facility could be accommodated on 13th Street. There is some extra space that could be used to provide buffers.	**4** Bike lanes could be provided on Baker Avenue, space for a cycle track on Spokane Avenue, and shared bicycle/pedestrian facility could be accommodated on 13th Street. There is some extra space that could be used to provide buffers.
4C. MULTIMODAL CONNECTIVITY	**4** Incorporating non-motorized facilities as shown in the typical sections would complete a segment of the Whitefish Promenade and Highway 93 South bike route. Would also provide a connection for the 13th Street Cutoff.	**4** Incorporating non-motorized facilities as shown in the typical sections would complete a segment of the Whitefish Promenade and Highway 93 South bike route. Would also provide a connection for the 13th Street Cutoff.	**4** Incorporating non-motorized facilities as shown in the typical sections would complete a segment of the Whitefish Promenade and Highway 93 South bike route. Would also provide a connection for the 13th Street Cutoff.
SUBTOTAL	**10**	**11**	**12**

Curb bulbouts, like this one at Spokane Avenue/4th Street, reduce the crossing distance for pedestrians.



Even with three lanes on Spokane Avenue, there is enough room to include the cycle track (Whitefish Promenade) desired by the Downtown Business District as well as landscaped boulevards between travel lanes and pedestrian facilities.



In order to accommodate both pedestrians and bicyclists on 13th Street within the limited right-of-way, a shared use path may be a good option. While it may be less comfortable than dedicated facilities (i.e. cycle track or sidewalk), it would provide the desired connection for the 13th Street Cutoff.

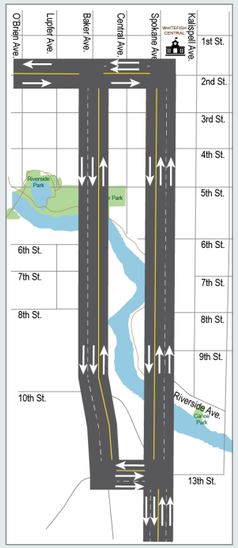
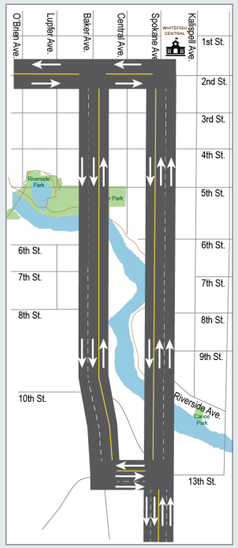
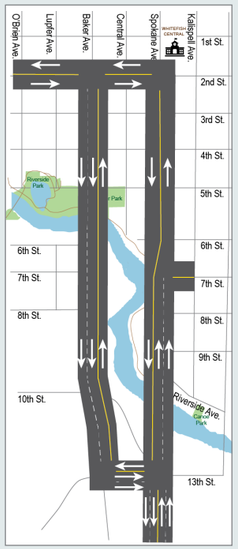
The existing configuration does not include any bicycle facilities on Spokane Avenue. This bicyclist is riding in the parking lane. The presence and width of landscaped buffers between the roadway and sidewalks also vary along the study roadways, as seen in this photo.

North of 5th Street, the bike lanes on Baker Avenue become a shared bikeway where bicycles share the travel lane(s). These facilities are less comfortable for bicyclists because there is not physical barrier (i.e. curbing, landscaped boulevard, grade differential, etc.) that separates bicyclists from vehicles.

CRITERION 5: ENVIRONMENT & CHARACTER

DOWNTOWN WHITEFISH
HIGHWAY STUDY

CRITERION 5: ENVIRONMENT & CHARACTER

	CONCEPT B: ALTERNATIVE C (OFFSET)	CONCEPT C: MODIFIED ALTERNATIVE C (OFFSET)	CONCEPT G: 2-LANE / 3-LANE HYBRID
			
5A. NATURAL ENVIRONMENT	**3** Concept requires two (2) three-lane Whitefish river crossings, allows enough space to provide landscaped boulevards with trees on Baker Avenue.	**3** Concept requires two (2) three-lane Whitefish river crossings, allows enough space to provide landscaped boulevards with trees on Baker Avenue.	**4** Concept requires two (2) three-lane Whitefish river crossings, allows enough space to provide landscaped boulevards with trees on Baker Avenue and on Spokane Avenue north of 7th Street.
5B. BUILT ENVIRONMENT	**3** Requires new right-of-way on 13th Street. Increased proximity of traffic to building frontages along 2nd Street.	**4** Requires new right-of-way on 13th Street. Increased proximity of traffic to building frontages at the 2nd Street/Spokane Avenue and 2nd Street/Baker Avenue intersections.	**4** Requires new right-of-way on 13th Street. Increased proximity of traffic to building frontages at the 2nd Street/Spokane Avenue and 2nd Street/Baker Avenue intersections.
5C. CONTEXT SENSITIVITY	**2** Landscaped buffer with trees provided on Baker Avenue. Includes three lanes Downtown on Spokane Avenue and 2nd Street and full reconstruction of 2nd Street.	**3** Landscaped buffer with trees provided on Baker Avenue. Includes three lanes Downtown on Spokane Avenue and some intersection reconstruction on 2nd Street.	**4** Landscaped buffer with trees provided Spokane Avenue north of 7th Street and on Baker Avenue. Two lanes Downtown on Spokane Avenue and some intersection reconstruction on 2nd Street.
5D. VEHICLE EMISSIONS & FUEL CONSUMPTION	**4** Third best fuel efficiency of all concepts. Concept performs well year-round with less fluctuation during peak seasons. Less time spent idling, less congestion causing stop/go movements.	**4** Second best fuel efficiency of all concepts. Concept performs well year-round with less fluctuation during peak seasons. Less time spent idling, less congestion causing stop/go movements.	**3** Fifth best fuel efficiency of all concepts. Concept has more fluctuation between seasons, compared to Concepts B and C. Slightly better fuel efficiency than Concept B in November.
SUBTOTAL	**12**	**14**	**15**

Landscaped boulevards help enhance aesthetics of the corridor with options for trees and street furniture. Boulevards also provide protection for non-motorists.

Congested conditions causing stop/go movements and idling contribute to increased vehicle emissions and fuel consumption. Improving operations has a positive environmental impact based on emissions and fuel consumption.

The curb bulbouts, wide sidewalks, and on-street parking on 2nd Street are important aspects of the Downtown core. Additional lanes may reduce sidewalk widths and push traffic closer to building frontages.

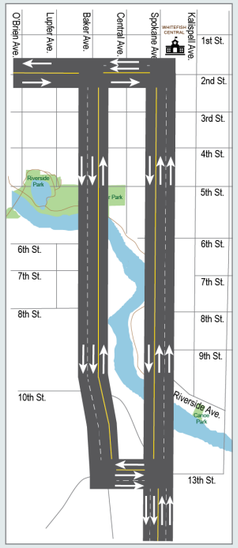
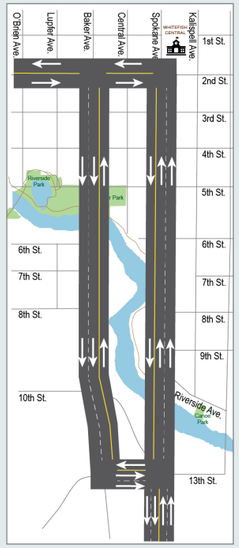
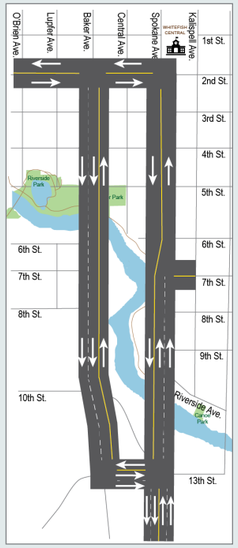
Maintaining trees along the study corridors is important to the community.

There are currently two Whitefish River crossings within the study area at Baker Avenue and Spokane Avenue. It is important to minimize impacts to fisheries, habitat, and wetlands at these crossings.

CRITERION 6: ECONOMIC VITALITY

DOWNTOWN WHITEFISH
HIGHWAY STUDY

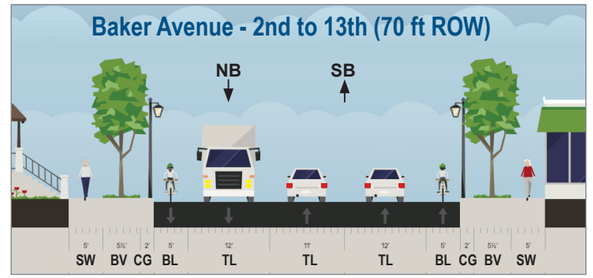
CRITERION 6: ECONOMIC VITALITY

	CONCEPT B: ALTERNATIVE C (OFFSET)	CONCEPT C: MODIFIED ALTERNATIVE C (OFFSET)	CONCEPT G: 2-LANE / 3-LANE HYBRID
			
6A. BUSINESS ACCESS & PARKING	**1** All on-street parking on Spokane Avenue would be removed. One lane of parking would be removed on 2nd Street. May involve driveway consolidation, but access would be maintained to greatest extent possible.	**3** All on-street parking on Spokane Avenue would be removed. Some parking would be removed on 2nd Street to accommodate westbound right-turn bay. May involve driveway consolidation, but access would be maintained to greatest extent possible.	**3** All on-street parking on Spokane Avenue would be removed. Some parking would be removed on 2nd Street to accommodate westbound right-turn bay. May involve driveway consolidation, but access would be maintained to greatest extent possible.
6B. IMPACTS TO ADJACENT LAND USE	**2** Roadway expansion to include three lanes on all roads (Spokane Avenue, 2nd Street, Baker Avenue, and 13th Street) pushes traffic closer to building frontage. Remove Downtown curb bulbouts to accommodate additional lanes and turn-bays.	**3** Roadway expansion to include three lanes on Spokane Avenue, Baker Avenue, and 13th Street pushes traffic closer to building frontage. Some intersection modifications to accommodate additional/longer turn-bays Downtown.	**3** Roadway expansion to include three lanes on Spokane Avenue (13th to 7th Street), Baker Avenue, and 13th Street pushes traffic closer to building frontage. Some intersection modifications to accommodate additional/longer turn-bays Downtown.
6C. ECONOMIC IMPACTS DURING CONSTRUCTION	**2** Significant traffic disruption Downtown for full reconstruction of 2nd Street. Extra lanes and tandem construction of Baker Avenue/ Spokane Avenue allows traffic to move during construction. Greatest roadway width required.	**3** Traffic disruption Downtown for reconstruction of 2nd Street intersections. Extra lanes and tandem construction of Baker Avenue/Spokane Avenue allows traffic to move during construction. Second most roadway width required.	**3** Traffic disruption Downtown for reconstruction of 2nd Street intersections. Extra lanes and tandem construction of Baker Avenue/ Spokane Avenue allows traffic to move during construction. Slightly less roadway width required on Spokane Avenue (7th to 2nd Street).
SUBTOTAL	**5**	**9**	**9**

When travel lanes are located close to residential or commercial frontages it can reduce comfort for non-motorists and increase noise. Trees and landscaped buffers help dampen the sound from the highway. Routing trucks out of the Downtown core can also help increase comfort and reduce noise.

In order to provide optimized traffic operations, a dedicated westbound right turn lane is needed on 2nd Street. To accommodate the turn lane, the intersection would have to be enlarged and the roadway would be pushed closer to building frontages.

Maintaining parking on 2nd Street is important for access to Downtown businesses.



Additional lanes have more construction impacts due to increased roadway width but also reduce traffic disruption by allowing traffic to continue moving during construction. Tandem construction of Spokane Avenue and Baker Avenue also provides more routing options to reduce delay during construction.

There are several driveways along the study roadways that provide access to adjacent residences and businesses. Maintaining access is important to adjacent land owners.

LEVEL II SCREENING - PART B SUMMARY

DOWNTOWN WHITEFISH
HIGHWAY STUDY

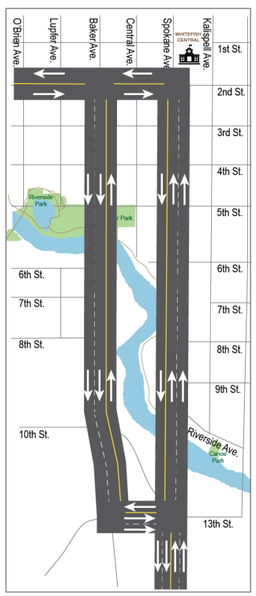
Screening Criteria		Sub Criteria		Possible Points	Concept B Score	Concept C Score	Concept G Score
4	Multimodal Accommodations	4a.	Pedestrian Comfort Level	5	2	3	4
		4b	Bicycle Comfort Level	5	4	4	4
		4c.	Multimodal Connectivity	5	4	4	4
MULTIMODAL ACCOMMODATIONS SUBTOTAL				**15**	**10**	**11**	**12**
5	Environment & Character	5a.	Natural Environment	5	3	3	4
		5b.	Built Environment	5	3	4	4
		5c.	Context Sensitivity	5	2	3	4
		5d.	Vehicle Emissions & Fuel Consumption	5	4	4	3
ENVIRONMENT & CHARACTER SUBTOTAL				**20**	**12**	**14**	**15**
6	Economic Vitality	6a.	Business Access & Parking	5	1	3	3
		6b.	Impacts to Adjacent Land Use	5	2	3	3
		6c.	Economic Impacts During Construction	5	2	3	3
ECONOMIC VITALITY SUBTOTAL				**15**	**5**	**9**	**9**
LEVEL IIA SUBTOTAL				**50**	**36**	**36**	**28**
LEVEL IIB SUBTOTAL				**50**	**27**	**34**	**36**
Total Points				**100**	**63**	**70**	**64**

While these options are relatively similar in accommodating non-motorists, Concept G scored slightly higher than Concepts B and C because it does not include a third lane on Spokane Avenue north of 7th Street. Concepts C and G also scored higher than Concept B because they don't include the third lane on 2nd Street which would preclude the ability to keep the existing curb bulbouts downtown, especially at the 2nd Street/Central Avenue intersection which is highly used by pedestrians.

Concept B scores lower than Concepts C and G because of the third lane on 2nd Street. Inclusion of the third lane requires additional space at the intersections which pushes traffic closer to building frontages in the already constrained Downtown core. Concept G scores higher than the other two concepts because the single lane on Spokane Avenue between 7th Street and 2nd Street allows wider landscaped buffers along the 5-block segment.

Concepts C and G are considered less impactful to the Whitefish community than Concept B. All concepts include three lanes on Spokane Avenue (only south of 7th Street in Concept G), Baker Avenue, and 13th Street. However, Concept B also includes a third lane on 2nd Street which would be more impactful to Downtown businesses. The full reconstruction of 2nd Street required in Concept B would also likely be more disruptive to traffic than the 2nd Street intersection modifications required with Concepts C and G.

CONCEPT C RECEIVED THE HIGHEST TOTAL SCORE



PREFERRED CONCEPT

***CONCEPT C** is identified as the preferred concept because it best **meets the operational and safety needs** of the National Highway System and is considered **feasible to implement**. The concept also provides the ability to **accommodate multimodal users** and **minimize environmental and economic impacts** to the community.*

LEVEL II SCREENING RESULTS

0 Does Not Address Criteria ⟷ **5** Fully Addresses Criteria

DOWNTOWN WHITEFISH HIGHWAY STUDY

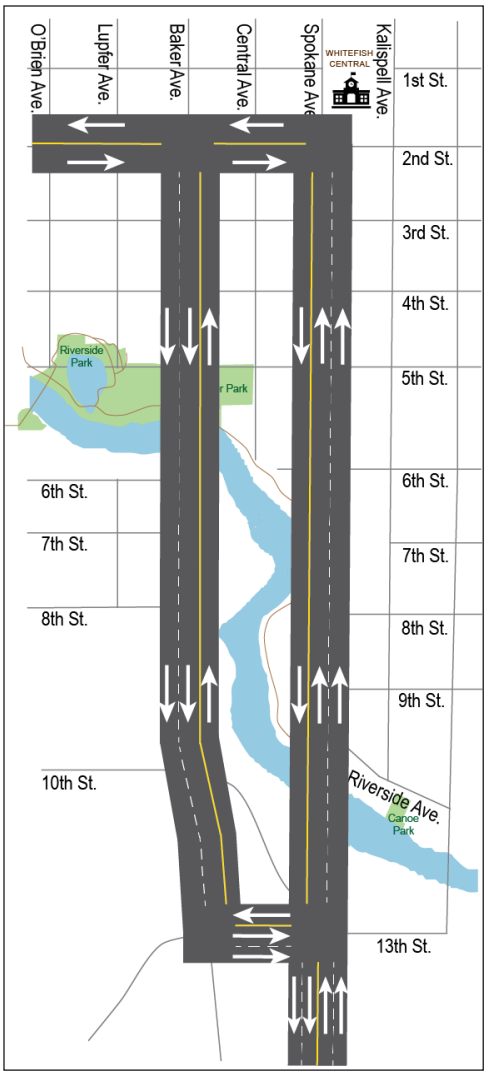
	Screening Criteria		Sub Criteria		Description	Possible Points	Concept A Score	Concept B Score	Concept C Score	Concept D Score	Concept E Score	Concept F Score	Concept G Score
PART A	1	Operations	1a.	Intersection Performance	Optimizes vehicular traffic operations at major intersections as measured by total intersection delay	5	0	4	4	5	4	2	3
			1b.	Travel Time	Minimizes average time required to travel between Spokane/13th and Baker/2nd as measured by combined north/south travel time	5	1	4	4	4	3	3	2
			1c.	Total Network Delay	Minimizes additional travel time experienced by network users beyond that required to travel at desired speed as measured by total network delay per vehicle	5	0	3	4	5	4	2	2
			1d.	Large Truck Accommodations	Optimizes ability for trucks to travel through Downtown Whitefish based on number of turns, overtracking, routing through Downtown	5	1	4	3	3	3	2	3
					OPERATIONS SUBTOTAL	**20**	**2**	**15**	**15**	**17**	**14**	**9**	**10**
					Does the concept meet the **operational needs** of the NHS?	[YES / NO]	NO	YES	YES	YES	YES	NO	YES
	2	Safety	2a.	Vehicle Conflicts	Minimizes potential conflicts between vehicles as measured by total path-crossing, rear-end, and lane-change conflicts	5	0	4	4	2	2	4	3
			2b.	Pedestrian Exposure	Minimizes conflict exposure for pedestrians based on crossing distances, protection provided by buffer areas, conflicts with trucks, intersection treatments, and protected crossing movements	5	3	3	3	3	3	3	3
			2c.	Bicycle Exposure	Minimizes conflict exposure for bicyclists based on protection provided by buffer areas, conflicts with trucks, intersection treatments, and protected crossing movements	5	1	4	4	3	3	4	4
					SAFETY SUBTOTAL	**15**	**4**	**11**	**11**	**8**	**8**	**11**	**10**
					Does the concept meet the **safety needs** of the NHS?	[YES / NO]	NO	YES	YES	YES	YES	YES	YES
	3	Implementation	3a.	Capital Cost	Minimizes total cost of construction	5	5	3	3	0	0	4	3
			3b.	Ongoing Maintenance	Minimizes maintenance performance relating to snow removal and storage, equipment and labor needs	5	4	3	3	1	1	3	3
			3c.	Funding Availability	Maximizes potential funding sources and funding ability	5	3	4	4	0	0	0	2
					IMPLEMENTATION SUBTOTAL	**15**	**12**	**10**	**10**	**1**	**1**	**7**	**8**
					Is the concept **implementable** as part of the NHS?	[YES / NO]	YES	YES	YES	NO	NO	NO	YES
					Is the concept feasible and does it meet the purpose & need of the NHS?*	**[YES / NO]**	**NO**	**YES**	**YES**	**NO**	**NO**	**NO**	**YES**
PART B	4	Multimodal Accommodations	4a.	Pedestrian Comfort Level	Serves pedestrians based on potential for pedestrian facilities and crossing treatments	5		2	3				4
			4b.	Bicycle Comfort Level	Serves bicyclists based on potential for bike facilities and crossing treatments	5		4	4				4
			4c.	Multimodal Connectivity	Provides connections to planned pedestrian/bicycle facilities and destinations	5		4	4				4
					MULTIMODAL ACCOMMODATIONS SUBTOTAL	**15**	**--**	**10**	**11**	**--**	**--**	**--**	**12**
	5	Environment and Character	5a.	Natural Environment	Minimizes impacts at water body crossings to fisheries, habitat, and wetlands; ability to support street trees based on presence/width of landscaped boulevard	5		3	3				4
			5b.	Built Environment	Minimizes impacts to buildings/structures and adjacent right-of-way	5		3	4				4
			5c.	Context Sensitivity	Aligns with Downtown Whitefish's character and ability to accommodate all modes based on aesthetics, street trees and landscaped buffers, bicycle/pedestrian accommodations, and travel lanes	5		2	3				4
			5d.	Vehicle Emissions and Fuel Consumption	Reduces air pollutants and fuel consumption from vehicles as measured by total fuel used per vehicle	5		4	4				3
					ENVIRONMENT AND CHARACTER SUBTOTAL	**20**	**--**	**12**	**14**	**--**	**--**	**--**	**15**
	6	Economic Vitality	6a.	Business Access and Parking	Minimizes impacts to driveways and on-street parking spaces in the downtown core	5		1	3				3
			6b.	Impacts to Adjacent Land Use	Minimizes impacts to property function based on comfort and noise associated with proximity of travel ways to residential and commercial frontages	5		2	3				3
			6c.	Economic Impacts During Construction	Minimizes disruption anticipated during construction based on delay, routing options, duration, road closures, and business access	5		2	3				3
					ECONOMIC VITALITY SUBTOTAL	**15**	**--**	**5**	**9**	**--**	**--**	**--**	**9**
					LEVEL IIA SUBTOTAL	**50**	**--**	**36**	**36**	**--**	**--**	**--**	**28**
					LEVEL IIB SUBTOTAL	**50**	**--**	**27**	**34**	**--**	**--**	**--**	**36**
					TOTAL POINTS	**100**	**--**	**63**	**70**	**--**	**--**	**--**	**64**

***Concept must meet the operational and safety needs of the highway and must be feasible to advance to Part B Screening**

The purpose of the National Highway System (NHS) is to "provide an interconnected system of principal arterial routes which will serve major population centers, international border crossings, ports, airports, public transportation facilities, and other intermodal transportation facilities and other major travel destinations." -Intermodal Surface Transportation Efficiency Act of 1991

Projects eligible to recieve NHS funds must support progress toward the achievement of national performance goals for "improving infrastructure condition, safety, congestion reduction, system reliability, or freight movement on the NHS". -23 U.S. Code § 119(d)(1)(A), National Highway Performance Program

PREFERRED CONCEPT DETAILS



DOWNTOWN WHITEFISH

HIGHWAY STUDY

PREFERRED LANE CONFIGURATION

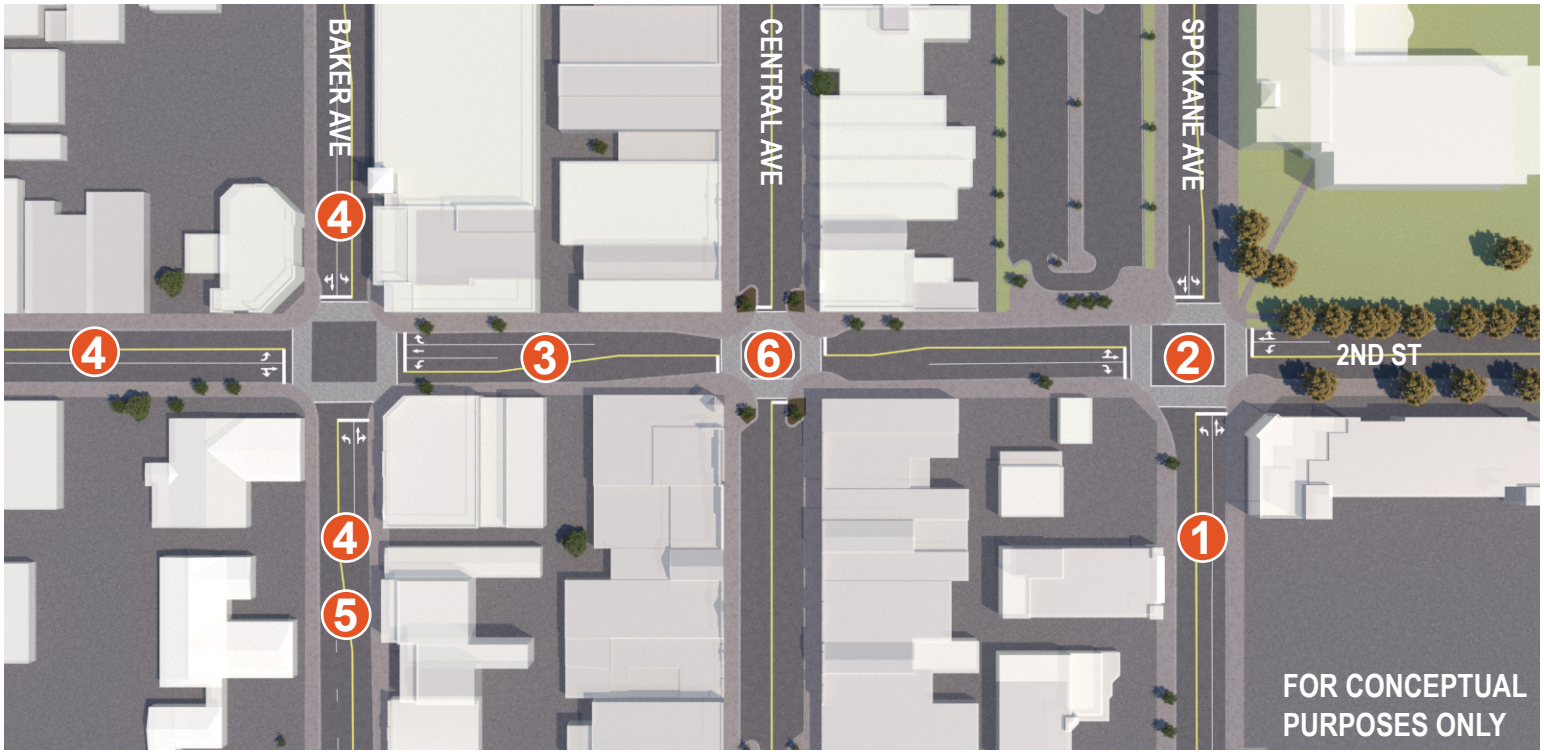
CONCEPT C: MODIFIED ALTERNATIVE C (OFFSET)

Concept C is identified as the preferred concept because it best meets the operational and safety needs of the National Highway System and is considered feasible to implement. The concept also provides the ability to accommodate multimodal users and minimize environmental and economic impacts to the community.

FEATURES:

- Three lanes on **Spokane Avenue** (two northbound, one southbound) - 70' typical right-of-way
- Two lanes on **2nd Street** (one in each direction) - 70' typical right-of-way
- Three lanes on **Baker Avenue** (two southbound, one northbound) - 70' typical right-of-way
- Three lanes on **13th Street** (two eastbound, one westbound) - 60' typical right-of-way

PRELIMINARY 2ND STREET CONFIGURATION



1 - Provide second NB lane

2 - Extend EB shared thru/left-turn lane

3 - Install new WB right-turn lane

4 - Extend left-turn bays

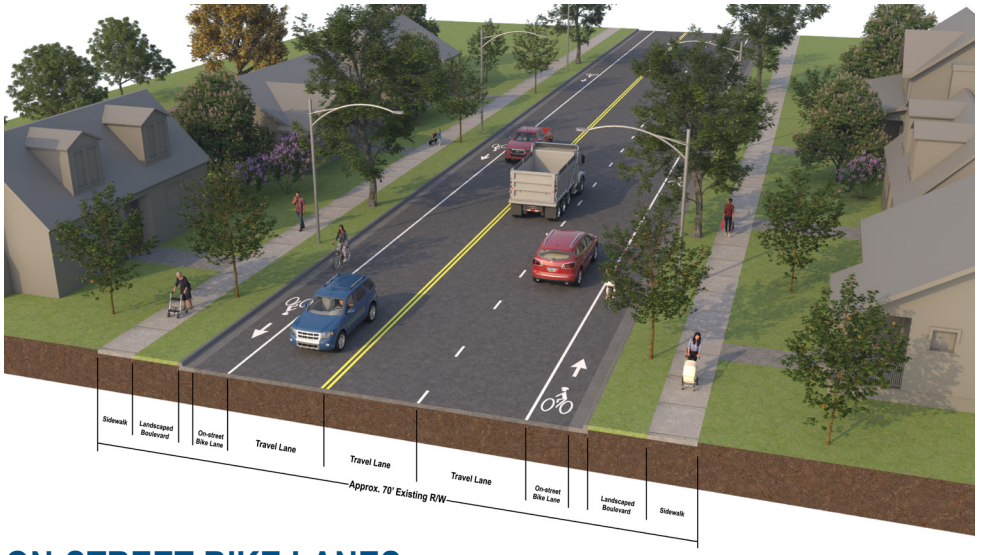
5 - Provide second SB lane

6 - Maintain intersection configuration

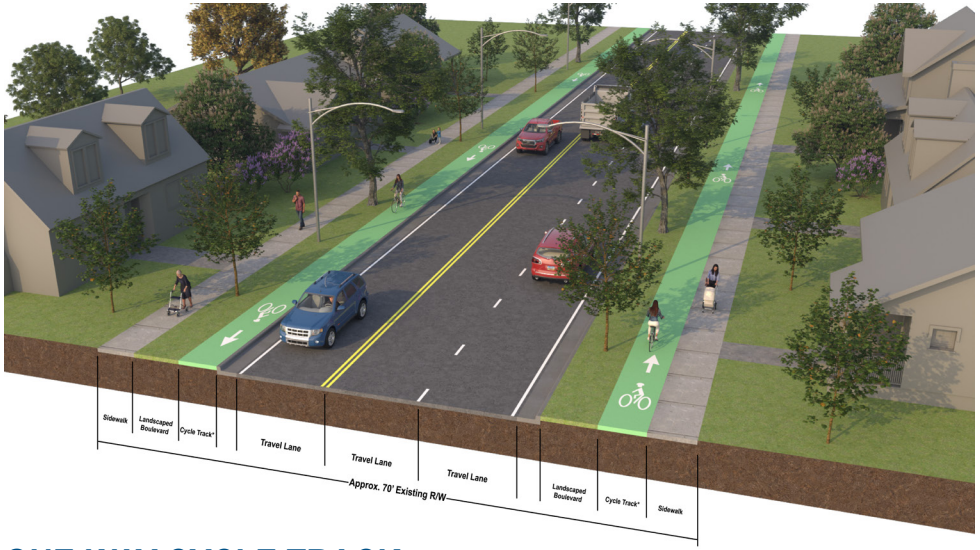
PRELIMINARY TYPICAL SECTION IDEAS

70’ TYPICAL RIGHT-OF-WAY (SPOKANE AVE & BAKER AVE)

SHARED USE PATH

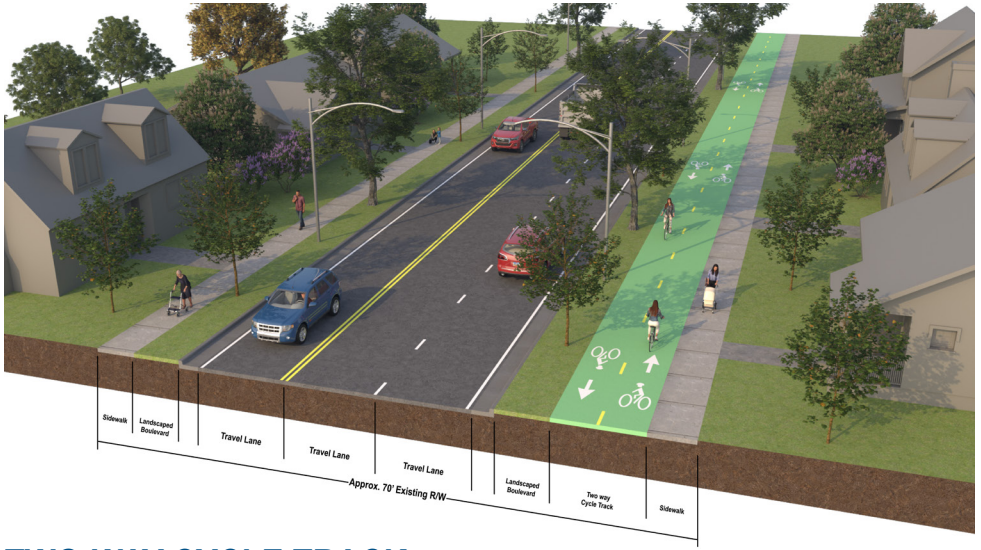


ON-STREET BIKE LANES



ONE-WAY CYCLE TRACK

**The one-way cycle track option can be configured in two different ways, as shown. The cycle track can either be adjacent to the roadway or separated by a boulevard.*



TWO-WAY CYCLE TRACK

Disclaimer: Typical sections are conceptual and may require design variances/exceptions to current design standards.