
To: Steve Gramm, SDDOT

From: Jody Page, HDR

Project: I-190 Corridor / Silver Street Study

CC: Patsy Horton – Rapid City, Todd Seaman – DOT Rapid City

Date: June 1, 2011 - FINAL

Job No: HP 5596(12)

RE: Potential Neighborhood / Philadelphia Street Connections West of I-190

During the Phase 1 analysis of the I-190/Silver Street study, several of the preliminary interchange options displayed a connection from North Street (east of I-190) to the newly constructed Philadelphia Street (west of I-190). This connection would be a change from the North Street to Silver Street connection as currently exists. While a Philadelphia connection has potential benefits from an interchange layout and design standpoint, a primary concern would be eliminating the link to the neighborhood on the northwest corner of the interchange. To address this concern, HDR displayed two potential new connecting streets between Boegel Street in the neighborhood and Philadelphia Street for the Phase 1 interchange options. For reference on the attached May 27, 2010 figures, the “blue” alignment connects Boegel Street with the existing west end of Philadelphia Street, while the “yellow” alignment connects Boegel Street with Philadelphia Street at a point further to the east. The two connecting streets were schematic in nature to display the need to maintain neighborhood connectivity but they were not analyzed in detail during Phase 1. It was realized that there would be grade challenges, housing impacts, and landowner coordination needed for a planned development. These issues were intended to be investigated further in Phase 2 of the study.

HDR’s work conducted to date in Phase 2 has included a more detailed consideration of the design for the potential neighborhood connection options. Several informational items have developed recently that has influenced the consideration of the neighborhood connection alignments:

- Preliminary roadway modeling with the existing topographical contours confirm that steep grades (6% – 12%) would be required along with considerable housing impacts needed for the design of both the “blue” and “yellow” options shown in Phase 1.
- Comment received at the March 31st public meeting indicated that neighborhood residents were not opposed to the Philadelphia Street connection options, but preferred a connection that would be more direct than either the “blue” or “yellow” routes.
- A Study Advisory Team meeting on April 19th indicated a strong preference to Philadelphia Street connections (Options 1a, 2a, and 3a) over the Silver Street connections from an interchange design and safety aspect. The City of Rapid City also noted that a Philadelphia Street connection to North Street would be their preference and they have always intended/planned for that to happen with this interchange project. The team recognized the issues and potential impacts of the neighborhood connection alignments as shown on the Phase 1 options, so direction was to explore other potential options. The team also indicated that the Phase 1, Option 1 should be kept for consideration and further study. However, if a feasible Philadelphia-neighborhood connection could be found, then Option 1 could be eliminated from further study due to the complications with the skewed interchange issues. A copy of the April 19th meeting minutes are attached for reference.
- Input from a meeting on April 21st with the landowners of the Founder’s Park development favored neither the “blue” or “yellow” routes. The “blue” route would bisect their development, and severely impact their planned use of the property. The developer also noted they will be applying to have the proposed north-south roadway across their property removed from the Rapid City major street plan, which was a key reason that the blue alignment was shown to connect to Philadelphia Street at the west end. While the “yellow” route would not be their preferred either, it may be acceptable if it were moved as far east on their property as possible. The developers would prefer another connection

beyond the “blue” or “yellow” routes to avoid impacting their development altogether. A copy of the April 21st meeting minutes are attached for reference.

As a result of the Phase 2 project input noted above, HDR has further investigated potential roadway alignments for the neighborhood to Philadelphia Street connection. The street network was reviewed and preliminary roadway modeling was used to confirm the design feasibility of the adjusted alignments show on the attached figures dated June 1, 2011. The results and recommendations from this analysis can be summarized as follows:

- Due to grade challenges, housing impacts, and strong Founder’s Park landowner opposition, delete from further consideration the “blue” alignment from Phase 1 figures.
- For Option 1, remove all neighborhood connections to Philadelphia Street from the interchange layouts. This link would not be required/provided with the interchange project due that this option would not change the existing connectivity of Silver Street and North Street. Note that this would not address the City of Rapid City’s concern for not providing a connection/outlet to the Philadelphia Street. Also note that this Option could potentially be removed from further consideration if the Study Advisory Team agrees that the three other options provide feasible neighborhood connectivity
- The Phase 1 “yellow” option across the Founder’s Park property could be carried forward into further analysis. While it also would involve grade challenges and housing impacts, the Founder’s Park landowner would consider it and it would provide a beneficial connection of two Rapid City collector streets of Boegel and Philadelphia.
- A new potential alignment was developed that begins at the eastern end of Silver Street and follows the I-190 southbound off-ramp, skirting the area of steep grades and connecting with Philadelphia Street to align with the 11th Street intersection west of I-190. While this would provide the benefit of lessened housing and ROW impacts, the SDDOT policy requires that any street connection be separated from ramp termini by at least 660’. The existing 11th Street connection onto Philadelphia Street is less than 660’ from proposed west ramp termini for most of the interchange alternatives, which would require either a local street realignment or a variance from control of access standards. Limiting connections for both the Silver Street extension and existing 11th Avenue to a Right In – Right Out Only is also an option for a connection this close to the interchange terminal.
- Another new potential alignment was developed that begins at the western end of Short Street and proceeds south to eventually follow the yellow alignment across the east side of the Founder’s Park property. This alignment would more closely follow the contours for a more desirable roadway profile and lessened housing impacts. However, one disadvantage would be that Short Street is currently a residential street and this connection would likely increase traffic on it.

The consensus decisions from the Study Advisory Team at the April 19th meeting paired with the engineering analysis noted above results in the four new Interchange Alternatives 1, 1a, 2a, and 3a. It’s important to note that the neighborhood connection alignments are not necessarily tied to any specific interchange option, so they are all shown in the figures for display purposes.

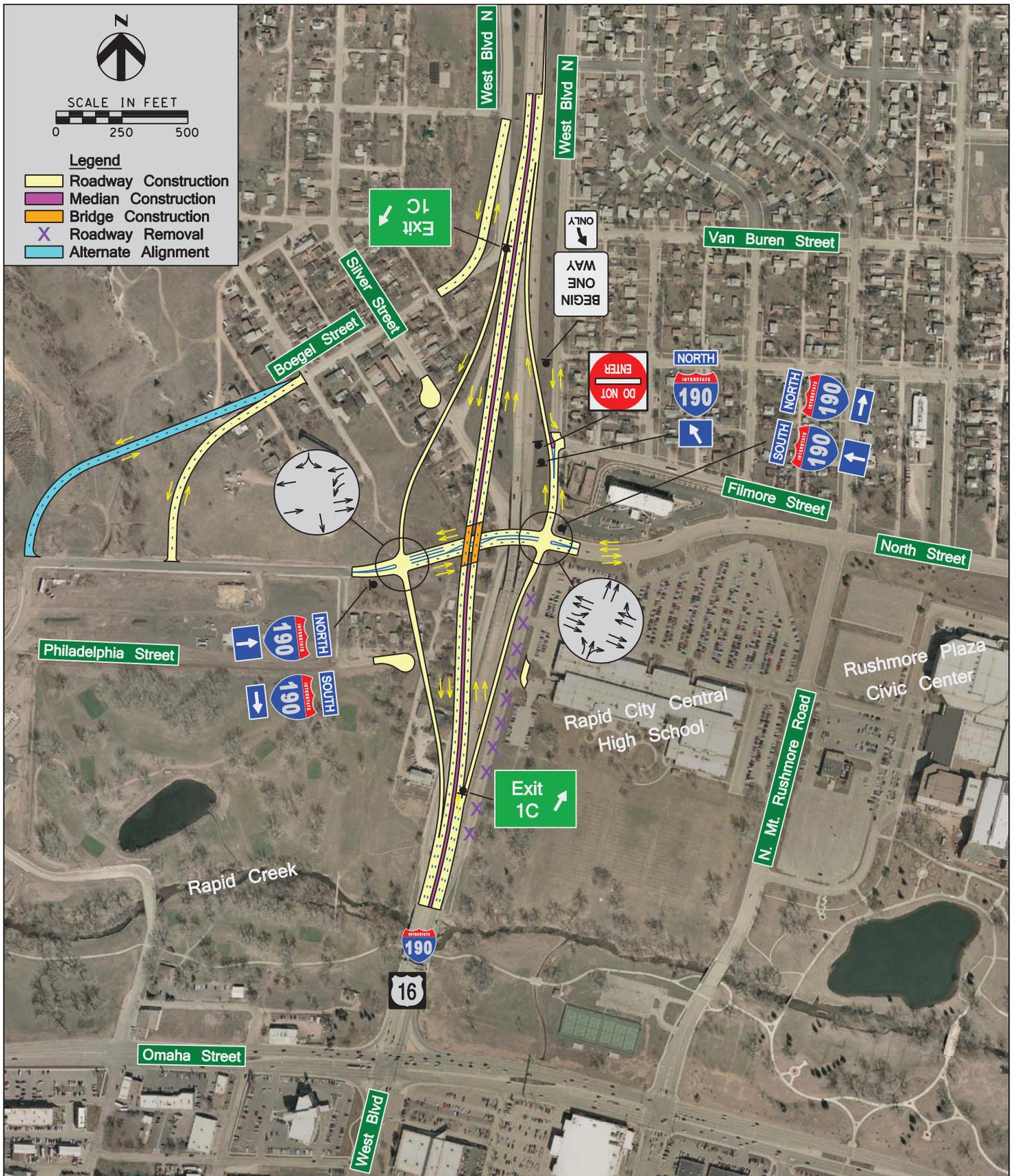
- Alternative #1 – Phase 1, Option 1 modified to remove the neighborhood connections.
- Alternative #1a – Phase 1, Option 1a modified to show the Boegel and Short Street connections.
- Alternative #2a – Phase 1, Option 2a modified to show the Boegel, Short, and Street Silver Street connections to Philadelphia.
- Alternative #3a – Phase 1, Option 3a modified to show the Boegel and Short Street connections.

Based on the results of the recent project meetings and further investigation, HDR would recommend to proceed with Phase 2 of the study with revised Alternatives 1, 1a, 2a, and 3a as described above and illustrated in the attached figures dated May 20, 2011. HDR will move forward with roadway modeling for these options and develop/submit plan and profile sheets with grading limits to assess impacts, where potentially Alternatives 1 and 3a could be dropped from further consideration due to the points discussed in the Study Advisory Team meeting.



Legend

- Roadway Construction
- Median Construction
- Bridge Construction
- X Roadway Removal
- Alternate Alignment



Interchange Option 1a

Full Diamond Interchange at North Street with I-190 shifted west

Interstate 190/Silver Street Interchange Study
Rapid City, South Dakota

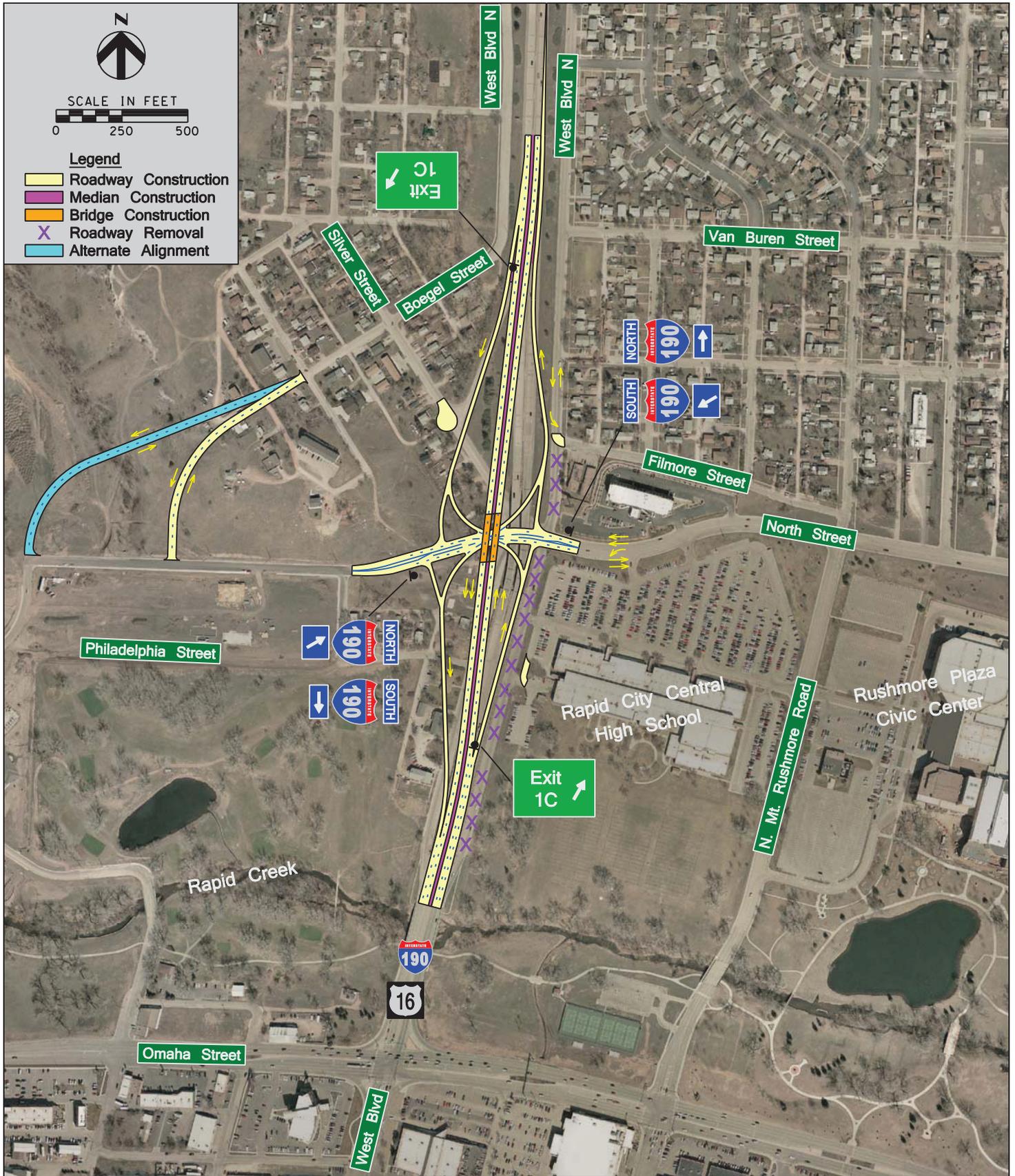


May 27,
2010



Legend

-  Roadway Construction
-  Median Construction
-  Bridge Construction
-  Roadway Removal
-  Alternate Alignment



Interchange Option 2a

Single Point Diamond Interchange at North Street with I-190 shifted west

Interstate 190/Silver Street Interchange Study
Rapid City, South Dakota

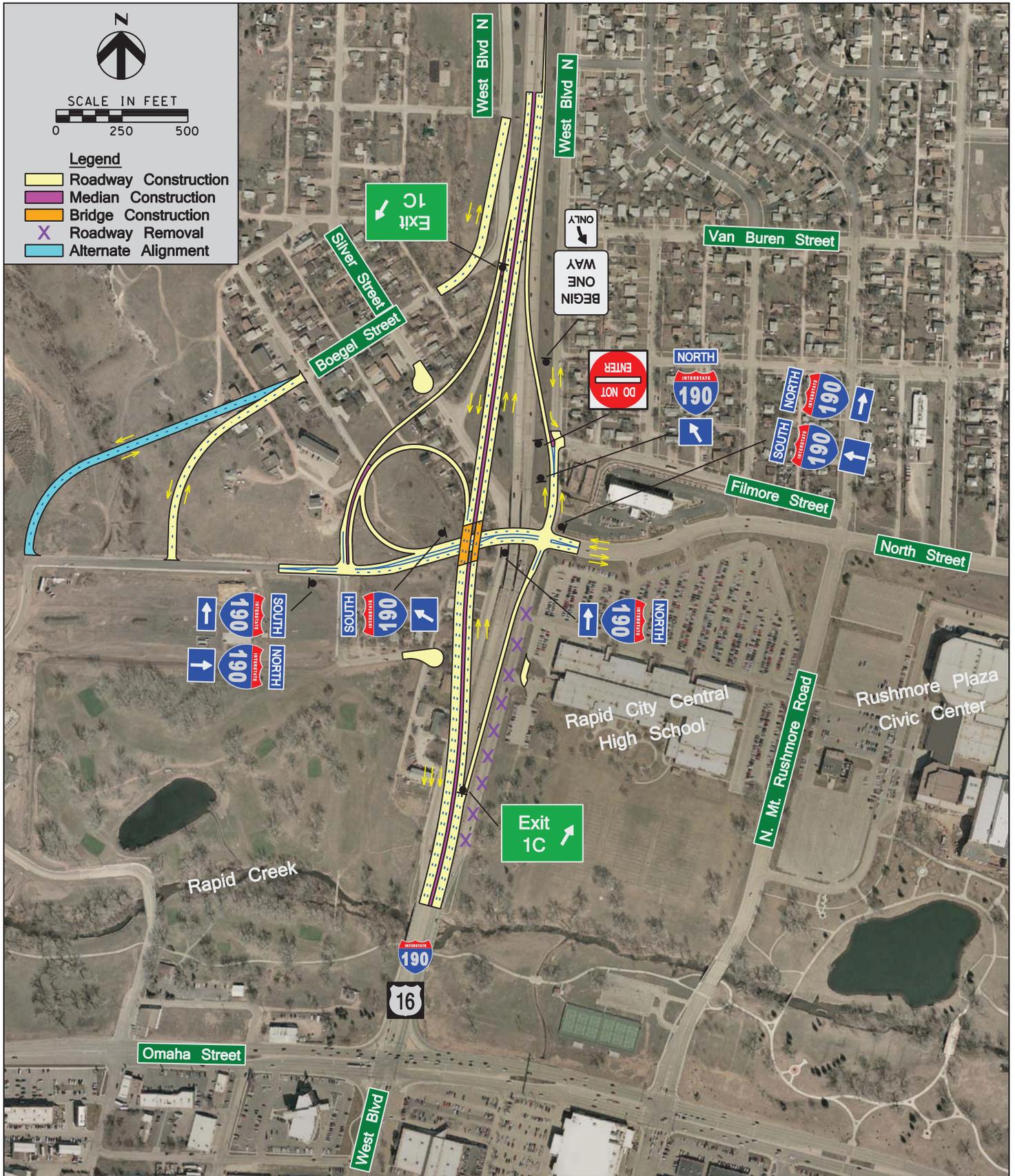


May 27,
2010



Legend

- Roadway Construction
- Median Construction
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- Roadway Removal
- Alternate Alignment

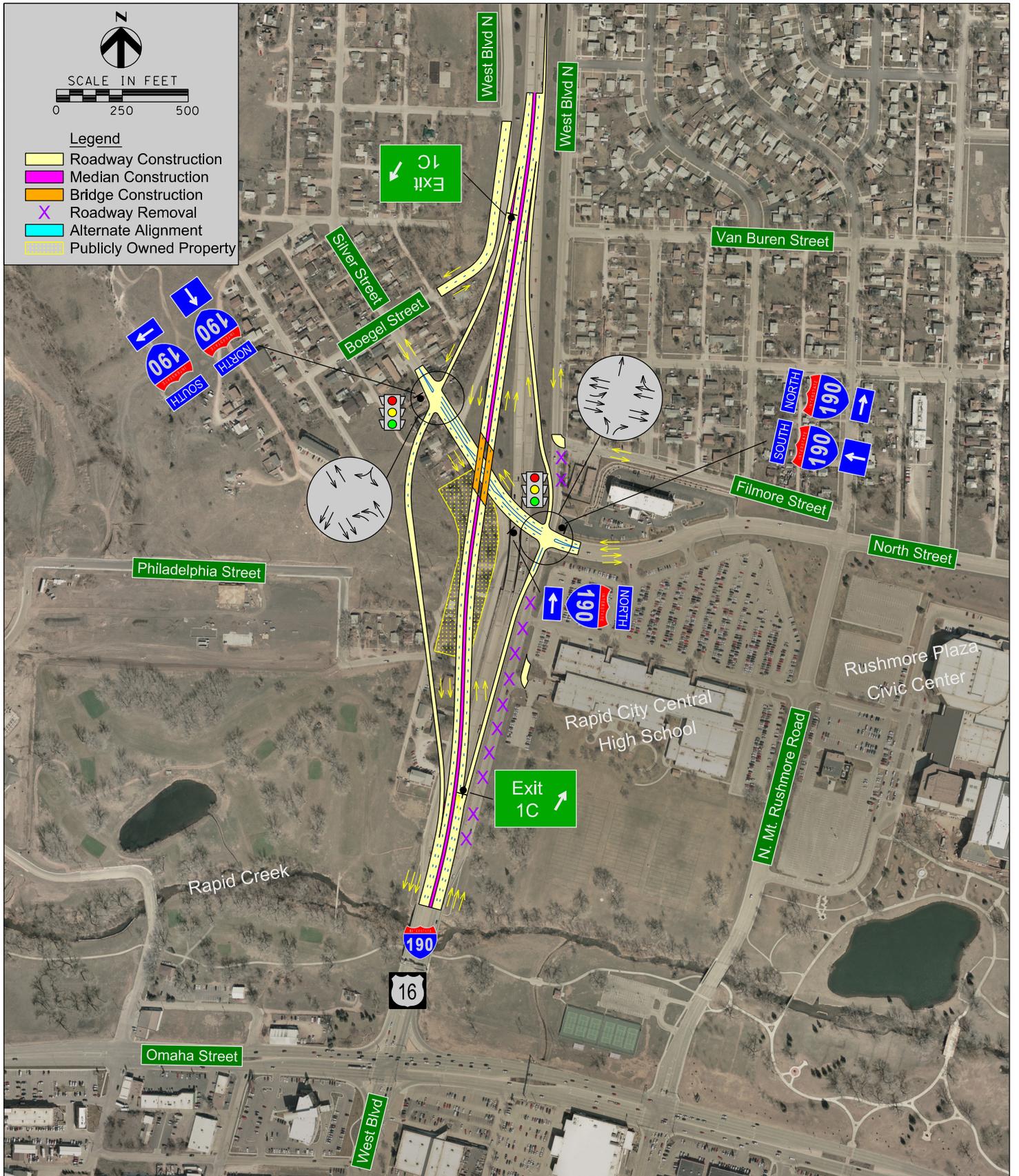


Interchange Option 3a

I-190 Interchange with Loop at North Street and EB to SB access

Interstate 190/Silver Street Interchange Study
Rapid City, South Dakota

May 27,
2010

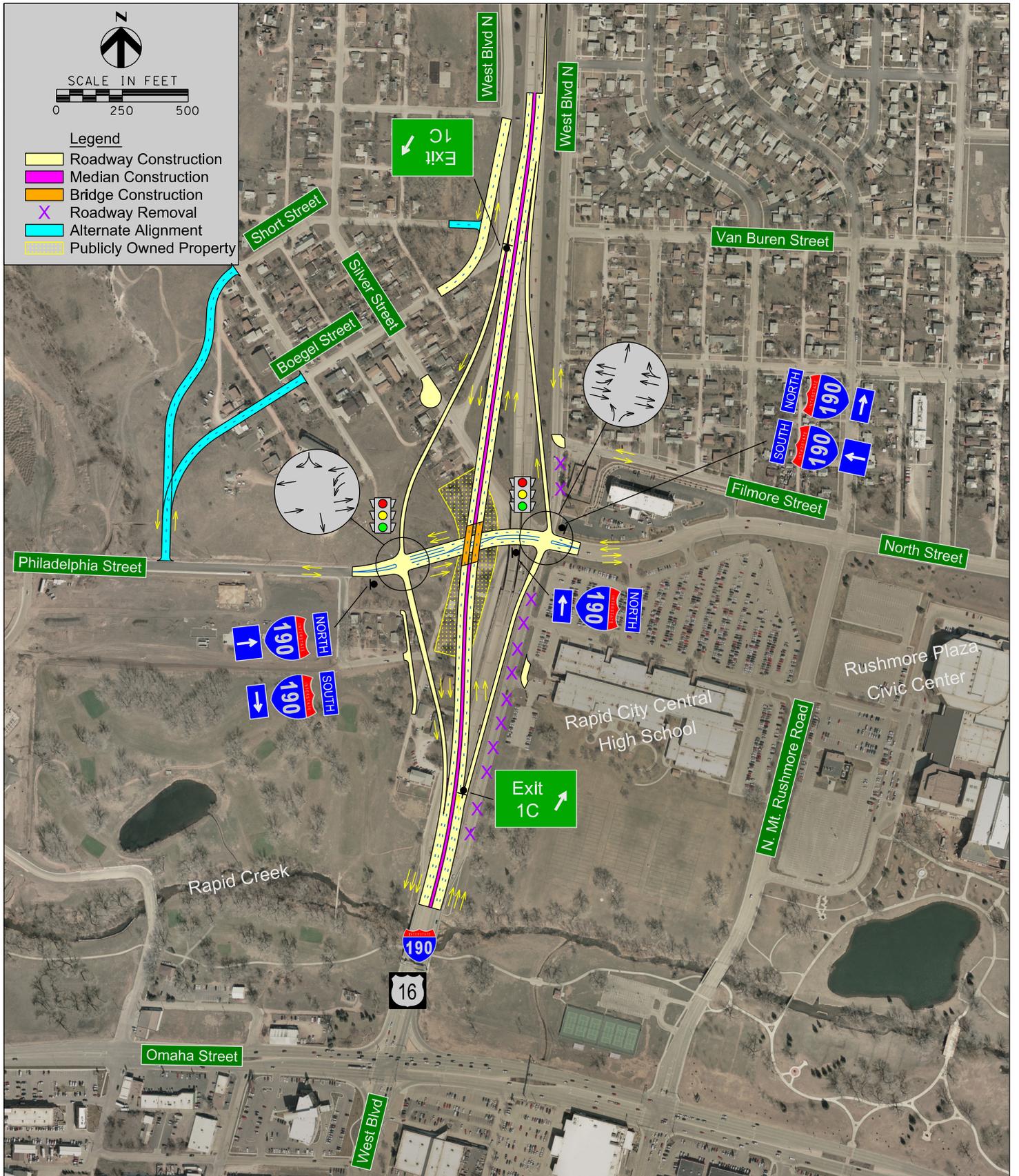


Interchange Alternative 1

Full Diamond Interchange at Silver Street/North Street with I-190 shifted west

Interstate 190/Silver Street Interchange Study
Rapid City, South Dakota

June 1, 2011

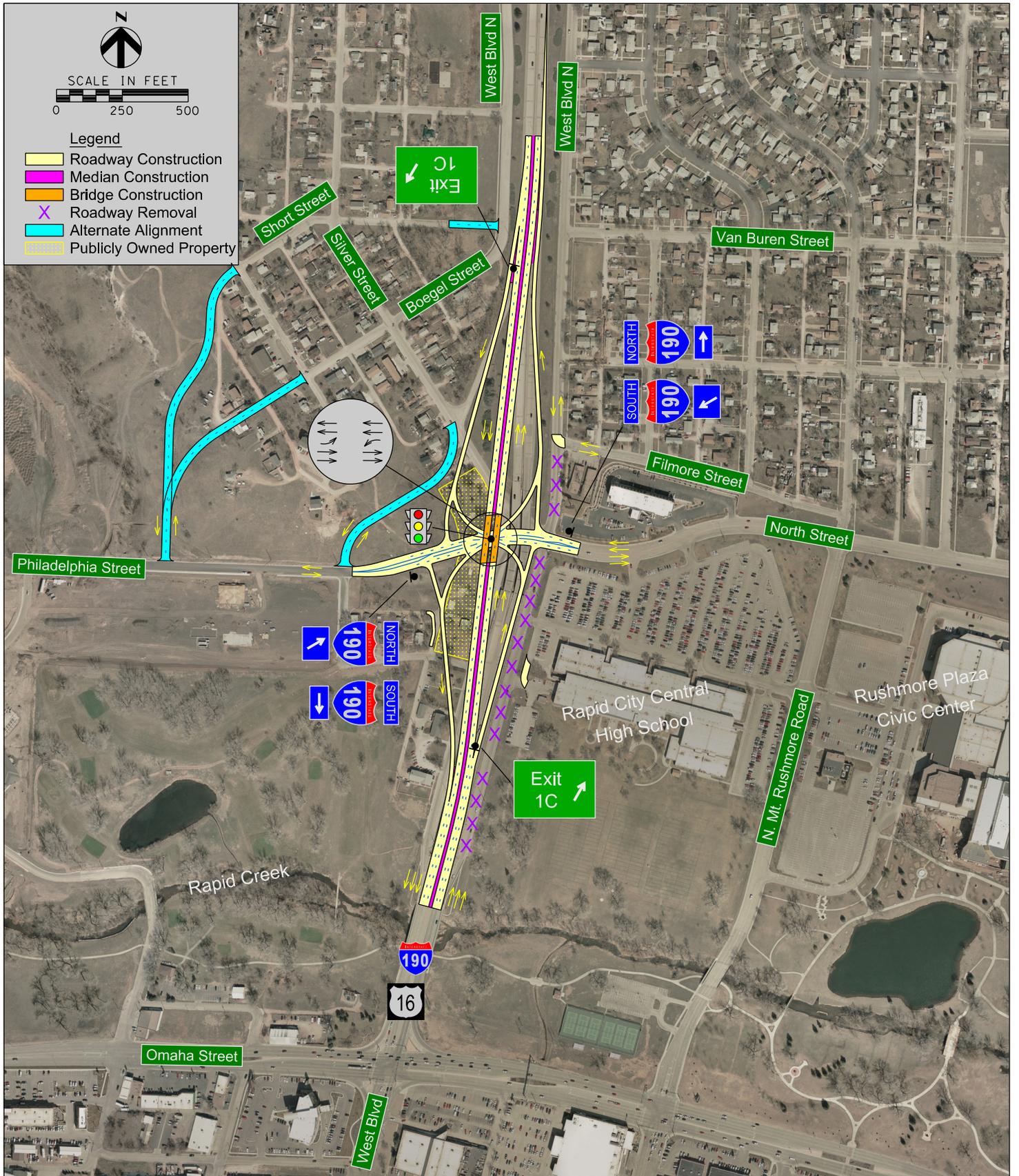


Interchange Alternative 1a

Full Diamond Interchange at North Street with I-190 shifted west

Interstate 190/Silver Street Interchange Study
Rapid City, South Dakota

June 1, 2011

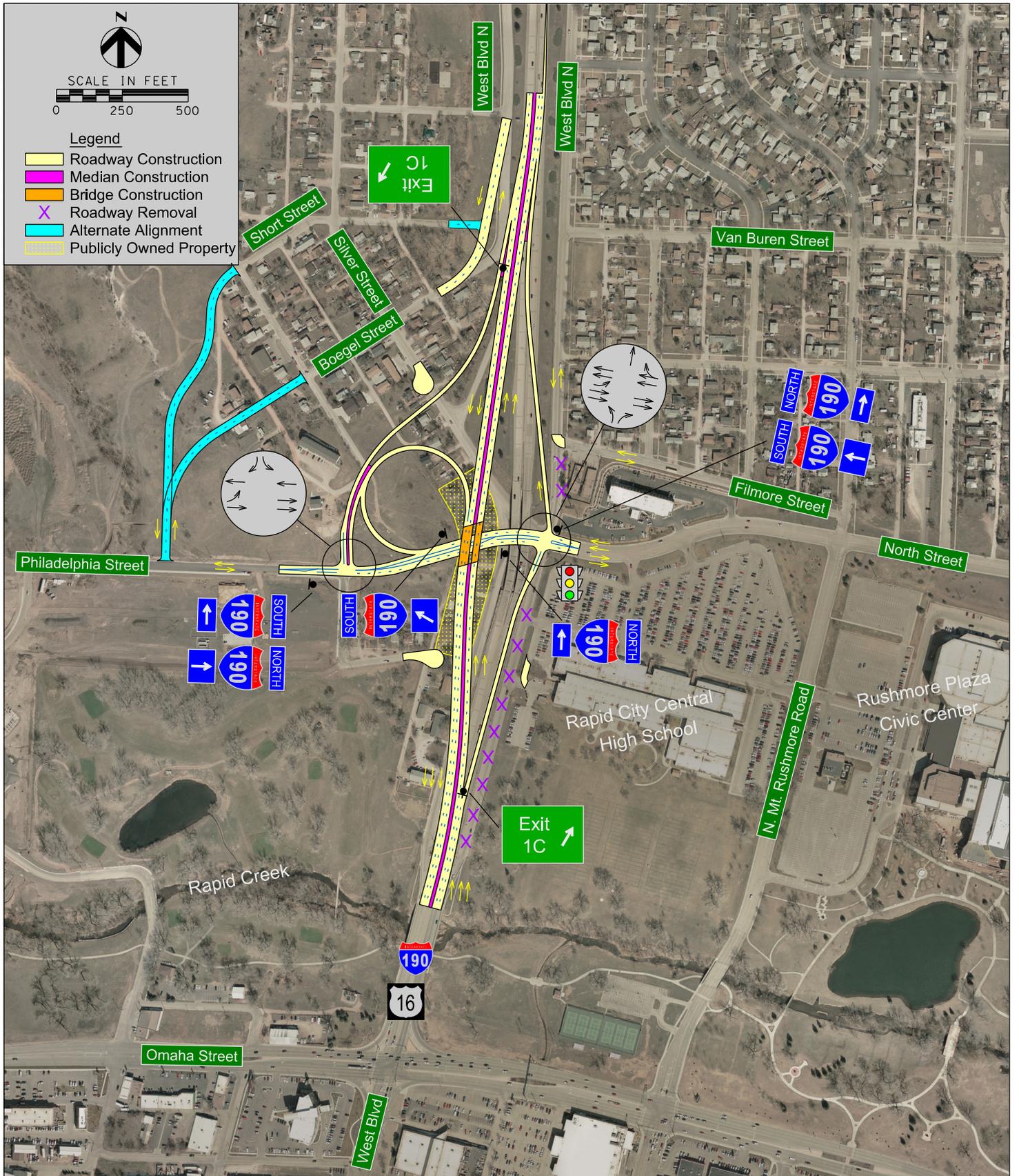


Interchange Alternative 2a

Single Point Diamond Interchange at North Street with I-190 shifted west

Interstate 190/Silver Street Interchange Study
Rapid City, South Dakota

June 1, 2011



Interchange Alternative 3a
 I-190 Interchange with Loop at North Street and EB to SB access

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 Rapid City, South Dakota

June 1, 2011