
**2007 Greenway Extension Plans
and
Executive Summary**

for

**Cheyenne Metropolitan Planning Organization
2101 O'Neil Avenue
Cheyenne, Wyoming 82007**

By

**Nolte Associates, Inc.
109 E. 17th Street, Suite 28
Cheyenne, Wyoming 82001
(307) 638-9081**

July 2, 2009
Revised September 24, 2009

TABLE OF CONTENTS

	<u>PAGE</u>
I. INTRODUCTION.....	1
II. PUBLIC INVOLVEMENT.....	2
III. DESIGN CRITERIA.....	3
IV. ANALYSIS SUMMARY	5
A. Holliday Park Overpass	5
B. Deming and Walterscheid Intersection.....	9
C. South Park Estates, 6 th Filing	10
D. Right-of-way Acquisitions and Easements	11
E. Drainage Structures at Monroe and Cleveland Avenue	12
F. Cribbon Avenue	13
G. Alternative Greenway Path Connections (Allison Road).....	14
H. South Section	14
(Walterscheid Blvd.: Fox Farm Road to the Safe Routes to Schools path, Walterscheid Blvd. to McFarland Avenue)	
I. Holliday Park Connection (Henderson Drive to Hot Springs Avenue).....	15
V. REFERENCES	16

APPENDIX A - Design Documentation

- Memorandum on the Floodplain Issues Related to the East Lincolnway Underpass/
Overpass Options Memorandum
- FIRM Flood Insurance Map Panel 1093: Map Number 56021C1093F Effective January
17, 2007 (2 sheets)
- Vertical Datum Conversion (NAVD 1988 to NGVD 1929) for WAPA greenway alignment
incorporation into Cheyenne Datum
- Horizontal Datum Conversion (Colorado State Plane to Wyoming State Plane to
Wyoming Surface)
- WAPA Cheyenne Substation Grading Plan

APPENDIX B - Public Involvement Documentation

- Power Point Presentation for MPO Technical Committee 2/18/09 and MPO Policy
Committee 2/24/09
- Public Open House 5/27/08 Documentation
- Cribbon Avenue Direct Mailer Memorandum
- Cribbon Avenue Direct Mailer Questionnaire 9/2009

TABLE OF CONTENTS (CONTINUED)

APPENDIX C - Engineers Estimate of Probable Costs

APPENDIX D - Agency Comments

APPENDIX E - Right-of-Way Acquisition Documentation

Union Pacific Acquisition Exhibit ET01

Estimate of Value of Union Pacific Railroad Land Vacant Land for Pathway by John
Sherman, MAI dated August 23, 2009

APPENDIX F - 2007 Greenway Extension 35% Design Preliminary Development Plans

I. INTRODUCTION

This analysis is intended to document design considerations for the preparation of 35% design documents for the Cheyenne 2007 Greenway Extension Plan. The 2007 Greenway Extension Plan consists of 3 separate segments. The southern segment includes the following 4 sections; Cribbon Avenue: I-80 overpass to Allison Road, Snyder Avenue: Safe Routes to School to Allison Road, Walterscheid Boulevard: Fox Farm Road to Safe Routes to School, and South Park Estates: Partoyan Avenue to Deming Drive/Walterscheid Boulevard (See Figure 1.1, South Section). The Holliday Park Segment runs from Holliday Park to Henderson Drive and includes a pedestrian overpass (See Figure 1.2, Holliday Park Connector). The Sun Valley Detention Pond Segment runs from North College Drive to the Taft Avenue Greenway Extension (See Figure 1.3, Sun Valley Detention Pond).



Figure 1.1

Nolte’s approach to the project was to base the preliminary conceptual design on the corridor plans contained within the documents, *Greater Cheyenne Greenway-Dry Creek Greenway, Union Pacific Railroad, Crow Creek Greenway, Holliday Park – preferred Route Alignment & Connectivity Planning Study, and Roadway and Bridge Plans for Norris Viaduct – City of Cheyenne, Laramie County Wyoming*. These plans were previously developed for the City of Cheyenne and the Cheyenne Metropolitan Planning Organization (MPO). The intent of this was to capture all the effort, time, and money of the previous plans and to incorporate the ideas into the 35% 2007 Greenway Plans. We supplemented the basic information from the City of Cheyenne GIS in the plan with a physical inventory of the designated routes in



Figure 1.2

order to specifically identify areas that contain conflict features. For instance, some of the features that were identified in the walk-thru and incorporated into the plan included conflicts such as: drainage grates, pipes, dilapidated sidewalk, fencing, vertical curbs, trees, shrubs, steep grades, or other features that could have interfered with designated route continuity, and convenient access. Furthermore, we attempted to identify or avoid areas which are currently noncompliant with the Americans with Disabilities Act or impractical to attain. These potential conflicts are not always evident or visible on the aerial photo and 2' contour interval maps and the physical inspection strived to identify as many as possible for this level of design. The proposed alignment for each segment went through various iterations in order to come to final route and location that is documented on the 35% plans. The plans and some of the various iterations can be found in Appendices in this document.



Figure 1.3

II. PUBLIC INVOLVEMENT

In an effort to improve the public involvement process, Nolte and the Cheyenne Metropolitan Planning Organization (MPO) used three different methods for soliciting and disseminating information. Our basic goal was to focus on the specific issues to be addressed by soliciting the specific input necessary to understand the issues, and by getting the “public” more involved in the process. The three methods utilized for the public involvement process were a public open house, the citizen/ agency based Greenway Advisory Committee and the MPO Policy and Technical Committee’s meetings, and a mailer questionnaire.

First, a public open house meeting for the project was held on May 27, 2008 from 5:00 to 7:00 PM, at the Cole Elementary School 615 West 9th Street. The informational meeting was split into table sections (i.e. Holliday Park Connector and Sun Valley Detention Pond; East Lincolnway/ East Nationway Crossing Options; and South Section I-80 to Goins Elementary School, Johnson Junior High School, Walterscheid Blvd, and Deming Drive Connection). Nolte, MPO, and City of Cheyenne representatives manned the different table sections. Fourteen (14) people were listed on the Sign-In-Sheet (Refer to Appendix B for a copy) as attending the meeting. Public comment forms were made available for written comments. The Comment Summary Card and the comments received from the meeting are included in Appendix B.

Second, established MPO and City of Cheyenne committee's were utilized for public input and circulation of information. Nolte presented the 2007 Greenway Extension Plan overview, challenging design areas, and proposed schedule to the Metropolitan Planning Organization Technical Committee on February 18, 2009. A copy of the power point presentation presented is included in Appendix B. The MPO staff presented the same power point to the MPO Policy Committee in February 24, 2009. Additionally, throughout the duration of the project updates were made on the progress and development of the plan to the Greenway Advisory Committee.

Third, a questionnaire and memorandum mailing was developed and sent to seven (7) residents on West Leisher Road. These residents were singled out as the proposed Greenway improvements on Cribbon Avenue included the proposal to eliminate alley access off of Cribbon Avenue for residents on West Leisher Road. The residents would still have alley access off of Leisher from the South. The following residences were sent the mailer questionnaire:

NO.	RESIDENT NAME	ADDRESS
1	Dudley Frederick Pendleton, Et Ux	1400 W. Leisher Road
2	Perry P. Spain	1408 W. Leisher Road
3	Yolanda Vigil	1414 W. Leisher Road
4	Alice Marie Kubal	1420 W. Leisher Road
5	Helen R. Webber	1426 W. Leisher Road
6	Donald E. Daniels, Et Ux	1500 W. Leisher Road
7	Cara E. Pruter	1508 W. Leisher Road

Three (3) of the seven (7) mailers were returned in a pre-paid postage envelope to Nolte, with 67% of the respondents opposed the elimination of the alley access off of Cribbon Avenue. A summary of the comments, memorandum, and copy of the returned mailers is included in Appendix B.

III. DESIGN CRITERIA

The greenway was designed to follow the current American Disabilities Act requirements and the greenways were held to a maximum of 5% grade at all locations other than curb ramps. In addition, the greenway paths were designed to follow the current City of Cheyenne design guidelines and the *Guide for the Development of Bicycle Facilities, 1999 (AASHTO Bike Guide)* by the American Association of State Highway and Transportation Officials.

Special consideration was given to areas with retaining walls and switchback curves. The outer side of the curve and path was widened from the standard 10' wide path to approximately 15' wide to accommodate a small truck mounted snow plow. Every attempt was made to maintain a minimum centerline radius of 30' for the same purpose of accommodating a small truck

mounted snow plow. The only areas which do not fulfill the criteria mentioned above were some narrow 6' wide neighborhood connectors at the Sun Valley Detention Pond Connector Section. The radii vary in that area from 5' to 10'. Furthermore, in order to accommodate the space constraints and lower the cost of the pedestrian overpass which connects the greenway system into Holliday Park, the overpass ramp radii were lowered to 13' and the width was narrowed to 8'.

IV. ANALYSIS SUMMARY

Portions of the greenway presented more challenges than others and therefore had more options analyzed and reviewed to determine the optimum location for the future greenway. These locations are covered in greater detail in this section, so that the thought process for each section is understood.

A. Holliday Park Overpass

Nolte analyzed three (3) different options for the crossing of East Lincolnway at Dunn Avenue. Two (2) of the options consisted of underpasses that led under East Lincolnway and the third option consisted of an overpass over East Lincolnway that was ultimately selected.

The overpass option was selected to be the best alternative due to the fact that both of the underpass options were within a Special Flood Hazard Area (SFHA) designated by the City of Cheyenne. The FEMA floodplain and location of crossing is shown in Figure IV.A.1. The area directly south of the shaded area of the figure or in direction of the bottom of Figure IV.A.1 on

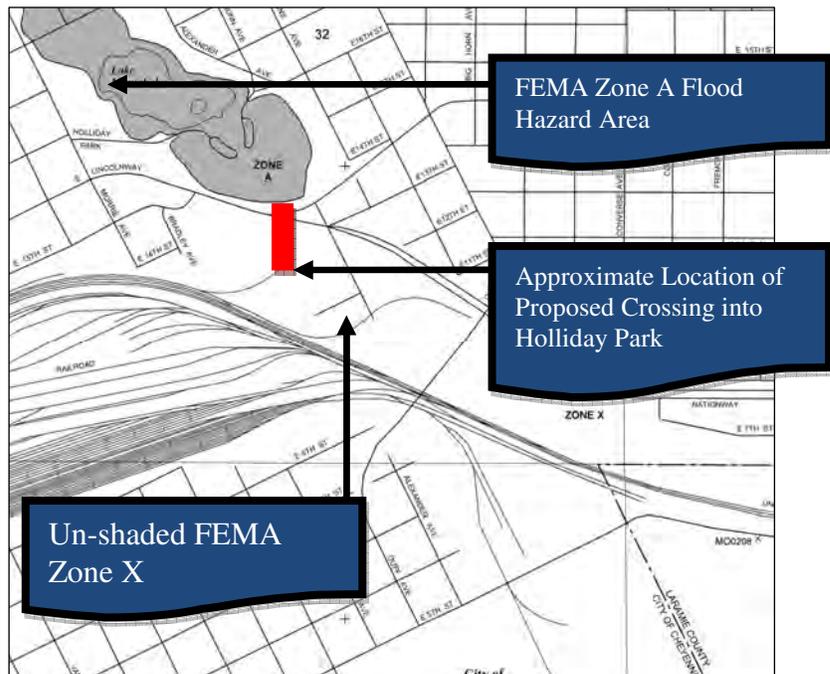


Figure IV.A.1

Lincolnway is within the City Special Flood Hazard Designation. The shaded Zone A in the figure is a special flood area inundated by the 100 year event but, no base floodplain elevation (BFE) has been determined while the unshaded Zone X are areas outside the 500 year floodplain. The FEMA Zone A and SFHA designated by the City of Cheyenne is illustrated in Figure IV.A.2 and IV.A.3 (e.g. FEMA Zone A: Red Hatch; SFHA City of Cheyenne: Blue Hatch).

A meeting with Ken Lewis, City Engineer and Julie Powell, Staff Drainage Engineer at the time of the plan development determined the best solution for the area. Basically, the Federal Emergency Management Authority (FEMA) allows the jurisdictional entity to completely regulate SFHA areas as they see appropriate. The City of Cheyenne's official policy is to treat a SFHA as a regulated FEMA Flood Hazard Area. Therefore, retaining walls

within the HA are subject to levee design criteria and maintenance, as well as, regulatory requirements for the following:

- 3-4' Freeboard
- Seepage and stability analysis
- Formal maintenance plan implementation.

The costs for and underpass option ranged from approximately \$450,000 to \$550,000. While this is large amount of money to spend in one location, the overpass option is significantly higher at minimum cost of \$950,000.

However, when you factor in the many design constraints of placing an underpass, it becomes clear that the

practical solution is an overpass option. As mentioned earlier, if an underpass is installed, the approach and underpass will be within the FEMA/ City of Cheyenne regulated FHA and SFHA. Second, the installation process creates a potential to increase the FHA and may have a negative downstream offsite impact as well. The extent of the FHA change or the impact to

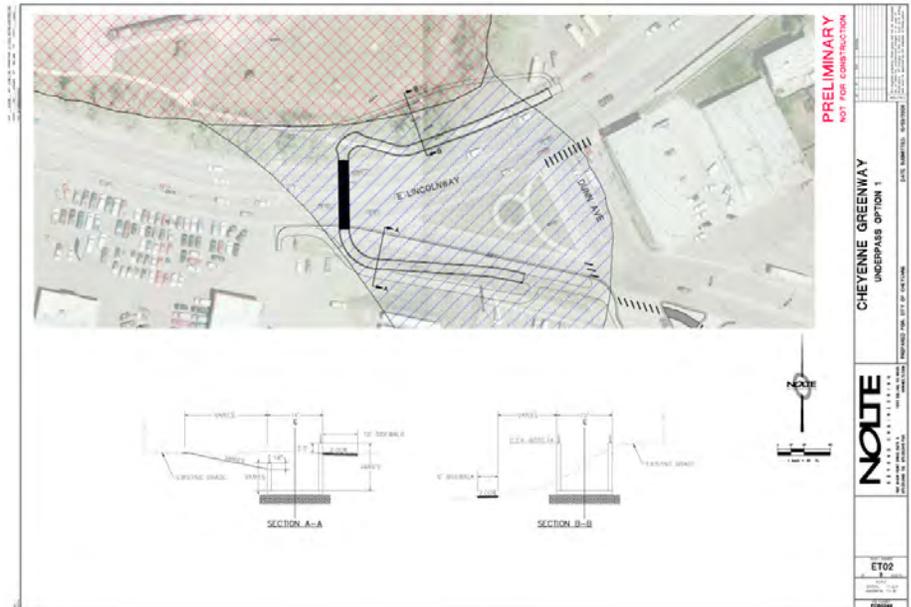


Figure IV.A.2, Underpass Option 1

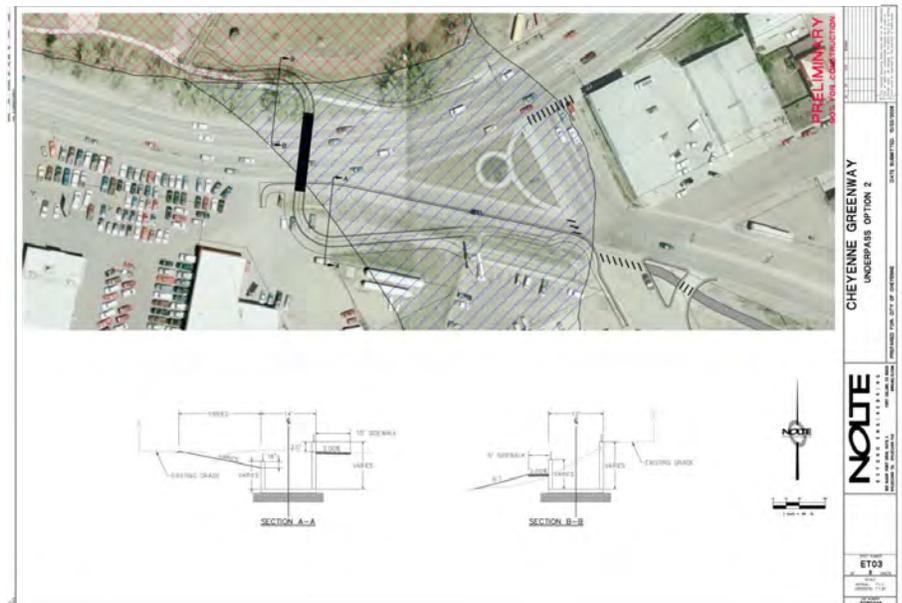


Figure IV.A.3, Underpass Option 2

downstream cannot be predicted or measured without a regional floodplain study. Unfortunately, at this time, an additional study was not part of the scope of this particular project. Third, although underground utilities including natural gas, sanitary sewer and electrical lighting have the potential to be impacted with any type of design (i.e. overpass/underpass), we believe at this time that an underpass will have more of an impact on the existing sanitary and natural gas main than the overpass option.

Finally, an underpass option will require an additional expense not within the \$450,000 to \$550,000 price tag mentioned above. That expense would be for a storm sewer lift station within the box culvert and approach retaining walls.

This could have a cost impact of approximately \$100,000 to \$150,000 for the pumps, electrical, and storm appurtenances necessary to complete the system. The options reviewed are outlined graphically on this and previous pages.

Underpass Option 1 (Figure IV.A.2) would require a levee wall on the north wall to prevent water from the FEMA floodplain from impacting downstream of the location. The red shaded area in all the options is the FEMA 100 year floodplain boundary and the blue shaded area is the Special Flood Hazard Area.

Underpass Option 2 (Figure IV.A.3) shown on the next page is a very open and safe design for



Figure IV.A.4, Option 3 Overpass Concept

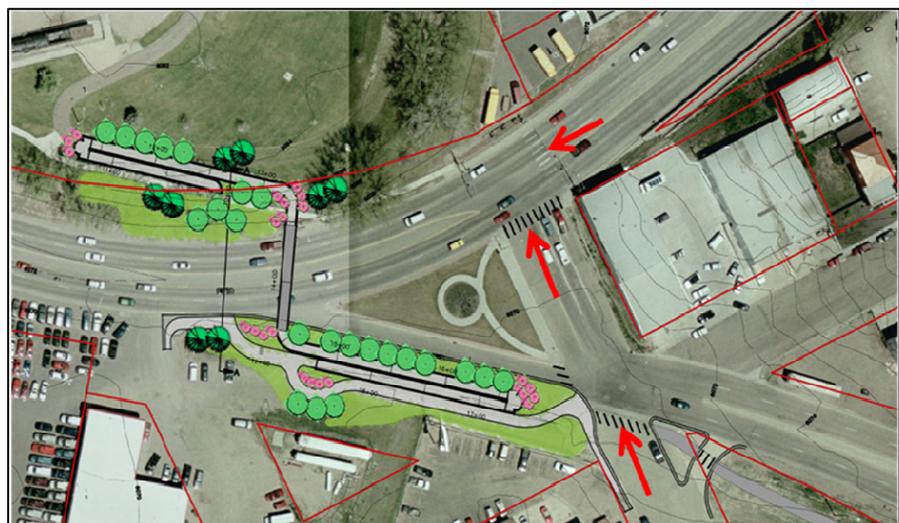


Figure IV.A.5, Option 4
Interim Option Stripe Cross Walks

the user but, would allow the possibility of storm water to impact properties downstream of the site.

The Option 3 Conceptual Overpass (Figure IV.A.4) illustrates the version of this structure presented at the public meeting. The 35% plan is shown in the appendix.

Finally, a fourth alternative (Figure IV.A.5) was presented in the area to serve the needs of the user in the interim. The option simply installs Cross Walks to restripe and accommodate pedestrian traffic. Please see Interim Option Stripe Cross Walks graphic Option 4 (locations of proposed crosswalks denoted with Red Arrows).

The following table summarizes the results discussed in the document, as well as, the public comment. Further information is contained in Public Involvement Appendix B and the Design Documentation Appendix A.

East Lincolnway Crossing Summary (Options and Impacts)

Alternative	Floodplain Impact	Levee Requirements	Pedestrian Safety	Pedestrian Visibility	Public Support	Cost
Underpass Option 1	X	X?	X		62% X	\$\$\$ X
Underpass Option 2	X		X	X	65% X	\$\$\$ X
Overpass Option	X		X	X	86% X	\$\$\$\$ X
Interim Option	X		X			\$ X

B. Deming and Walterscheid Intersection

Due to the amount of traffic, the limited line of sight, and the high speed limit, the Deming Drive and Walterscheid Boulevard intersection was analyzed for the possibility of a pedestrian overpass. Unfortunately the grade on the section of Walterscheid Boulevard south of the intersection is approximately seven percent (7%) and with a maximum grade of five percent (5%) on the greenway path it made it impractical to get the 16.5 feet to 17.5 feet of clearance that is necessary for a pedestrian overpass. A plan schematic of the concept is shown in Figure IV.B.1.



Figure IV.B.1

Therefore, other options were considered including the following: an on grade crossing at the signal on 5th Street at Deming Drive (See Figure IV.B.2), an on grade crossing tandem at Deming Drive and Walterscheid Blvd.(Figure IV.B.3), and an at grade crossing at 4th Street and Deming Drive (Figure IV.B.4).

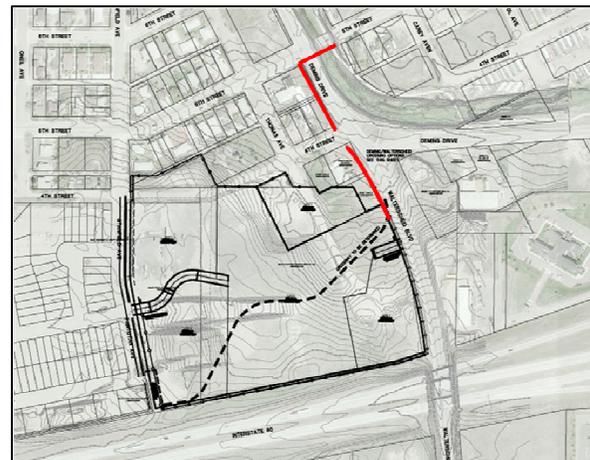


Figure IV.B.2

The on grade crossings at 5th Street provided the safest crossing but, would have required extensive rehabilitation of the bridge crossing West of Walterscheid at Crow Creek to make it a viable alternative at this time. This may need to be revisited in the future when funding or improvements are programmed for the bridge replacement (Please see Appendix D, Agency Comments). The combination crossing at Deming Drive and Walterscheid Boulevard option did not allow for enough sight distance for vehicles coming from the South on Walterscheid to see pedestrians crossing the street. With those factors in mind, the most practical location for the greenway path crossing at Walterscheid



Figure IV.B.3

Boulevard was determined to be at the intersection of 4th Street and Walterscheid Boulevard. Curb extensions were utilized on the East and West side of Walterscheid Blvd to shorten the crossing distance for the pedestrian. Additionally, the curb return radii were increased on Deming Drive to accommodate a WB-50 design vehicle.



Figure IV.B.4

C. South Park Estates 6th Filing

The routing of the greenway path through the South Park Estates 6th Filing was one of the more challenging sections of the greenway to locate. Nolte in association with the City of Cheyenne and the Developer came up with three potential routes for the greenway through the property with all of them essentially running along the south edge of the property and then north along the eastern property boundary (See the Figure IV.C.1). Some of the challenges faced during the

development of the options included protecting a landfill cap placed by the developer, the need for tall retaining walls, the potential effect grade would have on the buildable area on the property, and the ability to meet the standard greenway turning requirements. After numerous meetings and discussion with the developer and the City of Cheyenne, it became apparent that none of these options were mutually agreeable.



Figure IV.C.1
South Park Estates, Original Options 1

At that time the developer presented a new option that brought the greenway north down Partoyan, east along the north property line of South Park Estates and then circled the greenway around the detention pond and down 4th Street to Walterscheid Boulevard. This option had the benefit of being agreeable to the developer, but did require the crossing of

the two major drainage channels entering the detention pond and the spillway and overflow channel for the pond. Each of these crossings would have been substantial and would have required a large drainage structures below the greenway.

Therefore, Nolte took this option as the base and then began modifying it so that the trail did a series of switchbacks along the north property line and then went directly down the south side of the 4th Street right-of-way to Walterscheid Boulevard. This alignment avoided all of the drainage channel crossings, but does leave some rather tight switchbacks on the greenway. This new alignment was agreeable to the City of Cheyenne and the Developer and thus was selected as the optimal alignment for this section. Further field survey and plan completion will be required to complete this option. Please see Appendix F for the final 35% plan.

D. Right-of-Way Acquisitions and Easements

Greenway (Norris Viaduct to Cheyenne Rifle and Pistol Club)

The greenway between the Norris Viaduct and the Cheyenne Rifle and Pistol Club runs adjacent and through some small sections of the Union Pacific Railroad property. In order to minimize the easements required and the equality of the easements the easements were split up with some sections being on the C/K Messenger Family property and the remainder being on the Union Pacific Railroad property.

From approximately station 13+75 to station 17+77 the entire 20 foot easement is proposed to be on the very south edge of the C/K Messenger property. This is an undeveloped portion of the property that was already encumbered for the last 10' with a utility easement and the new greenway easement will lay right over the top of the original easement by only adding a new 10' section of the property that will be encumbered.

From station 17+77 to station 25+94 an acquisition Parcel No. 1 is proposed on the north 20' of the Union Pacific Railroad property. Through this section there are currently storage units located near the southern boundary of the C/K Messenger property and any encumbrance within the Messenger property would exclude the current vehicular access they have around the buildings.

From station 25+94 to station 28+50 the entire easement is proposed to be located on the C/K Messenger property. The C/K Messenger property takes a jog to the south at this location and the portion of the property that would be encumbered by the easement is a steep side sloping section that is not extremely useful at this juncture to the property owners.

From station 28+50 to station 29+40 another acquisition, Parcel No. 2, is proposed from the Union Pacific Railroad property. This location was selected as this places the greenway directly adjacent to the Crook Avenue right-of-way at the end of the cul-de-sac.

From station 29+40 to station 38+85 the entire 20 foot easement is located on the north edge of an unused parcel of property owned by Frontier Refining Incorporated. This location was selected to minimize the effect on the undeveloped lots that are located just

north of the proposed greenway location. The undeveloped lots are owned by Kirk Messenger

From Station 38+85 to 39+53 the greenway easement is split between the Frontier Refining Incorporated property and the Cheyenne Rifle and Pistol Club property. This switch brings the greenway onto the Cheyenne Rifle and Pistol Club property where it continues for a portion of the greenway that was designed by others. Please see Appendix E for the Right-of-way acquisition parcel areas, exhibit, and the report titled, *Estimate of Value of Union Pacific Railroad Land Vacant Land for Pathway* by John Sherman, MAI.

Overall

For easy reference and use the following table summarizes the ownerships and areas for proposed right-of-way acquisition

Parcel No.	Acquisition Area (AC)	Easement Area (AC)	Owner	Address	Appendix Reference	Plan Sheet Reference Page
-	0.50	-	Union Pacific		Appendix E, F	TR04-TR05
-	0.03	-	Union Pacific		Appendix E, F	TR05
-	0.17	-	Union Pacific		Appendix E, F	TR16
14663242900100	-	0.21	C/K Messenger Family	616 Crook Avenue	Appendix F	TR04
13660420000100	-	0.58	Frontier Refining Inc.	2700 5th Street	Appendix F	TR05-TR06
14663330000100	-	0.009	Cheyenne Rifle & Pistol Club	2621 7th Street	Appendix F	TR06
13660220701800	-	0.05	Ornelaz, Paul A ET AL	212 Savannah Drive	Appendix F	TR16
13660220701900	-	0.07	Ornelaz, Paul A ET AL	212 Savannah Drive	Appendix F	TR16
13660220702000	-	0.04	Ornelaz, Paul A ET AL	212 Savannah Drive	Appendix F	TR16
13660640001200	-	0.07	South Cheyenne Redevelopment, Inc.		Appendix F	TR19
13660642400800	-	0.15	South Cheyenne Redevelopment, Inc.		Appendix F	TR19
13660643406000	-	0.29	South Park Land Development		Appendix F	TR20
13660820000500	-	0.46	Gateway South LLC		Appendix F	TR21-TR22
13660710001300	-	0.11	United States Government		Appendix F	TR22

E. Drainage Structures at Monroe Avenue and Cleveland Avenue

The proposed greenway crosses two (2) major concrete drainage ways along its route near the Sun Valley Detention Pond. The two drainage ways are located at the ends of Monroe Avenue and Cleveland Avenue and are approximately 20 feet wide and 1 foot deep. Nolte looked at a couple of options for these areas and have presented two of the options in the 35% plan set.

The first option would be to construct a nuisance flow crossing where the relatively minor events would be conveyed through small diameter parallel culverts and the major flows would overtop the structure and flow over the greenway. This option would require that

the embankment for the culverts be armored to protect it from being destroyed and/ or flushed away during a high flow storm event.

The second option that Nolte considered was the use of a short small structure to span the drainage way. Nolte is recommending a small pedestrian bridge that would require a small footing on each side of the bridge. The advantage to this approach is the fact that it removes liability from the City in regard to hydraulic capacity since it could easily match the adjacent channel capacity. Secondly, an attractive bridge could help encourage neighborhood community involvement and ownership into the area.

F. Cribbon Avenue

The Cribbon Avenue section of the greenway presented many challenges and potential adjustments to the existing features. Those adjustments include blocking a section of alley, adjusting the United Missionary Baptist Church entrance and bumping out the curb line adjacent to Goins Elementary School to implement the new greenway.

For the proposed layout of the greenway the alley at the northwest end of Cribbon Avenue would be blocked off and an inlet and storm sewer would be installed to address the smaller drainage concerns. This would allow a landing area for a steep portion of the greenway path that is coming from the existing I-80 pedestrian overpass to tie into the proposed trail. The path then turns east and then turn south along the east side of Cribbon. The location of the path was determined to match up with the entrance of the existing school. This will require the alley to be closed off on the east end, but there is a mid block alley access that is located about Seven houses down and will thus allow for access to the garages that are currently served off of the alley. The only foreseeable issues with this solution may be the trash truck access to the alley and the fire access. The fire access could be taken care of with a removable section of fencing to allow for access off of Cribbon in an emergency. The trash truck is probably more complex and may require the residents to haul their trash can further down the alley to get it picked up. An informational comment response letter was sent to residents for feedback and is shown in Appendix B of this document to begin conversation about the possibility of closing the alley access in this area.

The access for the United Missionary Baptist Church also currently comes off of the alley on the east side of the street and we would recommend moving it to the center of the existing parking lot. This allows for the pedestrians to make the turn on the greenway so that they are headed south along Cribbon unabated. A small reconfiguration will be required on the existing church parking. A small reroute of the system preserves the same amount of stalls in the parking lot and potentially minimize some of the congestion leaving the lot.

The proposed changes adjacent to Goins Elementary School consist of bumping out the curb line into the existing parking stalls in order to allow the greenway to be constructed

adjacent to the school without disturbing the existing trees that are directly west of the school. With this adjustment we would restripe the road such that there will still be parking stalls on the east side of Cribbon adjacent to the school, but the west side would be signed no parking through this ½ block section.

G. Alternative Greenway Path Connections (Alternate 1 and 2 to Allison Road)

Nolte Associates analyzed two different options for the greenway from the greenway by others between Jefferson Road and Gopp Court to Allison Road. The two options consisted of using the existing greenway by others to move the greenway connection east to the west side of Snyder Avenue and running the proposed greenway down the east side of Cribbon Avenue.

By moving the greenway connection up to Snyder Avenue you are pushing the pedestrian traffic up to an existing roundabout and we feel that roundabouts present enough items for drivers to consider without them having to worry about large streams of pedestrian traffic crossing the roundabout. This does however push the greenway closer to the existing school and thus may increase its use.

The second option of leaving the greenway along the eastern edge of Cribbon Road should minimize the concern of the future crossing of Allison Road as the crossing will no longer be located at a roundabout. It does however push the greenway further from the new high school and might decrease its use or lead to the need to upgrade/widen the sidewalk along Allison Road to provide for a better connection from the school to the greenway. However, we believe this second alternative is most viable because the costs are virtually identical in magnitude, with the benefit of eliminating pedestrian conflicts of the Roundabout (Please See Appendix C and Appendix F for additional information).

H. South Section (Walterscheid Blvd.: Fox Farm Road to the Safe Routes to School path, Walterscheid Blvd. to McFarland Avenue)

This section of Greenway posed many challenges. First, the area from East to West raises approximately 50' in elevation. Obviously, we attempted to creatively address the vertical elevation and grade to meet ADA accessibility guidelines by a series of switchbacks. The switchbacks were widened to accommodate snowplows and users that wanted to stop on the pathway (See Figure IV.H.1). As we completed the 35% design of this section of the greenway, the Western Area Power Administration (WAPA) approached the City of Cheyenne for the construction of a new substation adjacent to the parcel proposed for greenway. After negotiation with the City and WAPA concluded, the plan for the greenway was altered by WAPA to accommodate the site development grading of the substation. The WAPA contractors completed the grading of the greenway on the far North portion of the site in the summer of 2009. Due to the changes in site to accommodate the development of the substation, the pathway alignment was altered from a switchback curvilinear to a straight tangent from East to West. The vertical grade on the path is

V. References

1. [Americans with Disabilities Act Accessibility Guidelines \(ADAAG\) \(1991\)](#), sections 1-10 adopted as Americans with Disabilities Act (ADA) standards by the US Department of Justice (USDOJ) for buildings and facilities under titles II and III of the ADA, and the US Department of Transportation (USDOT) for transportation facilities under title II of the ADA, and by the Federal Transit Administration (FTA) for its Federal-aid projects; developed primarily for buildings and facilities on sites and poorly adapted to right-of-way or trail use.

2. [Guide for the Development of Bicycle Facilities, 1999 \(AASHTO Bike Guide\)](#). The American Association of State Highway and Transportation Officials
The *AASHTO Bike Guide* is recommended as minimum guidelines for bicycle transportation facilities and shared use paths, but not for bicycle trails intended for rough terrain mountain bike use.