



15th Street Corridor Urban Renewal Plan City of Cheyenne

February 23, 2023



STUDIOPLAATS



February 23, 2023

Mr. Domenic Bravo
President & CEO
Visit Cheyenne Wyoming
One Depot Square
121 W. 15th Street, Suite 202
Cheyenne, WY 82001

Re: 15th Street Corridor Urban Renewal Plan

Dear Mr. Bravo,

This report has been prepared for the City of Cheyenne by Plan One/Architects in conjunction with Martin and Martin and StudioPlaats. This executive summary covers the efforts and concepts behind the 15th Street Corridor Urban Renewal Plan. For the purpose of this study, the 15th Street Corridor is the area between Bent Avenue and Capital Avenue along 15th Street.

It has been a pleasure working with your leadership group and staff. The following information shows a great level of enthusiasm and forward thinking by your organization, all geared towards providing opportunities for your community, both residents and tourists. We hope to see project implementation and experience the project soon.

Sincerely,



Britt Morgan, AIA, Vice President
Plan One/Architects



INDEX

Executive Summary

1

Civil Narrative

2

Landscape Narrative

3

Architectural Narrative

4

Precedent Studies

Phase 1A

Phase 1B

Phase 1C

Phase 1D

Phase 1E

Phase 2

Roundhouse - Future Phases

Appendix

5

APPENDIX A - Meeting Minutes

APPENDIX B - Traffic Report Study

APPENDIX C- Rail Car Hazardous Material Inspection Reports

APPENDIX D - Conceptual Estimates





Executive Summary

Introduction: This report has been prepared for the City of Cheyenne by Plan One/Architects in conjunction with Martin and Martin and StudioPlaats. It is a feasibility study, which by definition is a preliminary exploration of a proposed project to determine its merit and viability. This executive summary encapsulates the efforts and concepts to develop the 15th Street Corridor Urban Renewal Plan. For the purpose of this study, the 15th Street Corridor is the area between Bent Avenue and Capitol Avenue along 15th Street.

Purpose of this Report: The purpose of the 15th Street Corridor Urban Renewal Plan is to explore and develop a conceptual plan for public improvements along 15th Street. The public improvements should support economic vitality, property reinvestment/ development, and enhance the downtown and historic depot area. The goals for the improvements along 15th Street, in no particular order, are:

1. Integrate the city, community, visitors, and property owner's vision of the corridor.
2. Evaluate street sections to maximize parking, and provide optimal vehicle, pedestrian, and bike circulation.
3. Enhance the corridor and depot area by creating areas to display historic rail cars and re-purposed rail cars.
4. Integrate the Greater Cheyenne Greenway along 15th Street to improve connectivity to pedestrian pathways and bicycle facilities in the downtown area.
5. Improve the aesthetics and safety of the corridor by improving fencing and lighting and creating opportunities to display public art.

This document is conceptual and is intended to evaluate different options. It is a preliminary evaluation and not a final document for construction. It is important to note that this study is one



Historical Photograph of the Original Train Depot on 15th Street.

step in the planning process and is intended to provide the concepts and framework for procuring funding opportunities, refining design ideas, and allow for development of final construction plans for implementation in the present or twenty plus years in the future.

History of the Railroad in Cheyenne:

Whether it was to be known as Crow Creek, Iron City, or the Magic City of the Prairie, Cheyenne's history starts with the Union Pacific Railroad. General Grenville Dodge established the Union Pacific Railroad town site that we know as Cheyenne on July 4, 1867, and just five days later the "end-of-tracks town" had a population of nine. The settlement took off quickly with the first framed house erected on July 25th with construction of Fort D.A. Russel commencing soon after. By August 10th, Cheyenne's population had grown to approximately 600 people.



Aerial Image of 15th Street

The first tracks reached Cheyenne in November of 1867 at which time Cheyenne had an estimated population of 4,000 and 200 established businesses. Survival of an end-of-tracks town was not always guaranteed. Fortunately that was not the case with Cheyenne. Fort D.A. Russel and the construction of the Kansas Pacific Railroad's expansion towards Denver helped establish Cheyenne as a permanent settlement.

As Cheyenne matured during the late 1800's it developed into a cultural as well as economic hub. The railroad afforded residents of Cheyenne access to the latest news, fashion, furnishings, and entertainment from the East, which made it a unique addition to the otherwise Wild West. The Cheyenne Club, opened in 1880, and the opera house, constructed in 1882, were two of the notable social venues of their times.



Benefits to the Community: The proposed 15th Street Corridor Urban Renewal Plan is a means of honoring the rich history and growth the Union Pacific Railroad has afforded Cheyenne since its very beginnings. By looking to preserve that history in a manner that fits with our 21st Century lifestyle, we hope to embody the essence of what the railroad has meant to the City of Cheyenne throughout the years. The project has the potential to be the catalyst for Cheyenne to become the ‘Railroad Capitol’ destination for railroad enthusiasts and community members alike. The project is intended to build upon the private investment that has started to revitalize 15th Street by drawing the community and visitors to the area. With the expansion of the Greater Cheyenne Greenway and improved traffic flow, it will benefit the community and local businesses. The project will also provide better fencing between the active train yard and additional street lighting to improve the security of the area. With temporary closures between Carey Avenue and Capitol Avenue, it will support and expand the events throughout the year at the Depot. It will celebrate Cheyenne’s Railroad Heritage with historically refurbished railcars and become an interactive experience.

Proximity, Location and Synergy: 15th Street provides the perfect location for positioning the refurbished rail cars. With its proximity to an active rail yard which has approximately 80 trains per day, historic Depot, and with visual proximity to the Union Pacific Rail Road Roundhouse, it highlights the juxtaposition of the railways history and present. Part of the future vision for the project includes a bridge over to the Roundhouse which provides a unique opportunity for visitor’s to view an active rail yard in an accessible and safe manner. This project will also provide synergy between the Reed Avenue and Historic West Edge Projects to create a cohesive downtown experience.



3D Model of Entire Site - Showing Extent of 15th Street Improvements

Master Plan Documents and Adjacent Projects: The City of Cheyenne has a number of exciting plans for the future and has developed a number of forward-thinking master plan documents which have been reviewed and integrated into this project.

Reed Avenue Rail Corridor Master Plan: The City of Cheyenne worked with the Cheyenne Metropolitan Planning Organization and consultants to develop the Reed Avenue Corridor Master Plan in April 2018. The plan looked at revitalizing the Reed Avenue Rail Corridor and removing barriers for redevelopment. Most recently, funding has been approved through the 6th Penny Tax for the proposed improvements along Reed Avenue.

Cheyenne On-Street Bicycle Plan and Greenway Plan Update: The City of Cheyenne worked with Alta Planning & Design and Environmental Planning Group to update the Greater Cheyenne Greenway Plan in 2012. The plan provides the Cheyenne area with projects, programs, and policies necessary to create a first-class on-street bicycling system. The 15th Street Corridor Improvements would expand the systems already in place.



Concept image illustrating the Reed Avenue Corridor.



Bicycle/Pedestrian Circulation: The Cheyenne Greenway and cycling network is an important component of this study. There is a gap from the main trail at Martin Luther King Junior Park to Holliday Park. With the proposed extension along 15th Street, it will continue the greenway connection getting the City closer to becoming interconnected. Bicycle safety is of paramount importance, and the street sections explored different options for creating visual or physical barriers between cars, bicycles, and pedestrians. Utilizing the greenway guidelines, there are four different options proposed. The fourth option is the safest option for bicyclists with a buffer built in between vehicles and bicyclists. This option still allows the required twenty foot width for fire trucks in an emergency.

Traffic Study: One of the critical aspects of the project was understanding the current traffic flow and use of 15th Street and the impact any changes might have. Sustainable Traffic Solutions, Inc. provided current traffic counts as well as projected traffic counts for the project. They reviewed two options for 15th Street including closing off a portion between Capitol Avenue and Carey Avenue. Option 1 would make 15th Street one-way eastbound from Bent Avenue to Carey Avenue. In Option 2, 15th Street from Pioneer Avenue to Carey Avenue would be one-way eastbound and 15th Street would be one-way westbound from Pioneer Avenue to Bent Avenue. The purpose of making 15th Street one-way was to maximize parking along 15th and integrating the greenway. STS recommends Option 1 be implemented to close 15th Street. The intersection operation is expected to be similar for both options, but Option 1 will cause less confusion for motorists. The Level of Service does not significantly change from the current operation. The full Traffic Study Report is included in the Appendix.

Visitor and Community Enhancement: One of the key ideas for the project is to incorporate refurbished and/or re-purposed railcars as part of the visitor experience along 15th Street. This will help create active spaces that people will visit and gather. Right now, 15th Street is full of static spaces like parking lots that people move through, but do not interact with. The proposed modifications to 15th Street, will create safe circulation for pedestrians, bicyclists and vehicular traffic and places where people will want to gather.



FTSX 812 Caboose

UPRR Railcars Hazard Material Inspection Report: The anticipated railcars to be utilized for refurbishing or re-purposing have been inspected for hazardous materials by Earth Services and Abatement using a certified Asbestos Inspector. The inspections revealed varying levels of asbestos-containing materials (ACM), lead-containing paint (LEAD), and polychlorinated biphenyl (PCB). The recommendations and costs for abatement were based on the assumption that the cars would visual viewed and walked through by the general public. It was recommended that Rank 1 and 2 be completed prior to the use/ occupation of the rail cars for tourism purposes. Additionally, it is recommended that if ACM is either removed or disturbed as part of renovation/

demolition activities that ACM should be further investigated and removed under abatement conditions prior to renovation. The risk for storage of rail cars exposed to elements was reviewed and determined to have very little risk of health concerns based on the nature of the hazards present. Long term storage of railcars with exterior lead-containing paint that are exposed to the elements is likely to only result in shallow soil lead contamination in areas surrounding and under the rail cars. Soil remediation is likely to be limited to removal and proper disposal of the top six (6) inches of soil in the railcar storage area. Detailed recommendations for abatement and anticipated costs have been made and summarized in Appendix.



Gunslingers

Community Engagement: To collect feedback from the community, multiple avenues were utilized including conducting an open house meeting, stakeholder group meetings and one-on-one meetings. The open house style meeting was conducted by Plan One at the Historic Depot where the conceptual ideas of the feasibility study were presented on May 11, 2022. For the two hours that we were there, we had about 40 people come in to discuss the project and review the presentation.

The second opportunity for engagement was a stake-holder meeting conducted on June 15, 2022. Plan One met with the City, different community members and business partners with a staked interest in the project. The main discussion points from both groups centered around parking and improved safety. The majority of the businesses wanted to increase parking for their employees and patrons and some expressed the need to maintain semi-trailer parking in the area. They also wanted to increase visitation and maximize/protect the existing commerce along 15th Street. After the meeting, various members walked along 15th Street reviewing different ideas and opportunities. Some of the ideas that came out of the meeting included changing the alignment of the railcar plaza to encapsulate Gunslingers and limit the intrusion into the existing parking lot. Another idea was to have seasonal closure of 15th Street between Carey Avenue and Capital Avenue instead of permanently. The business owners also proposed changing the one-way to run eastbound instead of westbound. It was an amazing opportunity to have so many community members and City Staff together to review the project in person and have open discussions for the benefit of the project. Presentation Images are included in the Appendix.

15th Street Corridor Urban Renewal Plan Process: Our role in the planning process was to provide guidance and expertise in the planning, development, implementation, and community engagement. The team met with the community and business members to understand their concerns; and reviewed case studies of other communities that have integrated their railways or railcars into interactive experiences. The purpose of the planning document is to capture the communities' vision of 15th Street Corridor and develop an Action Plan for implementation and further design development.

The decisions and directions made in the plan were developed as a collaborative effort and shaped by a number of influences. Those decisions and directions that are documented in this plan were shared with the community during the public engagement process. Every effort was made for complete transparency through open communication with the stakeholders and community participants. The following is a summary of the recommended implementation Phases and the key components of the 15th Street Urban Renewal Plan. Please note that there is a natural tendency to believe that a plan will be applied in its entirety with minimal changes. However, that would not appropriately respond to natural unforeseen opportunities that arise in the community, as well as, the final design efforts that will be required for final implementation. In order to arrive at a conceptual plan for the improvements, a number of options were contemplated and evaluated.

Phase 1A (Faux Track & Train Placement):

Nearest to the Depot and the Museum, the railcars would be abated to provide the visitor with a historic perspective of the trains that were active through Cheyenne. The goal is to include construction of a linear faux elevated rail track and supporting infrastructure (curb and gutter, pedestrian path, drainage, etc.), Placement and refurbishment of three (3) rail cars identified in the \$733,000 EDA grant is also included. This phase would also include installation of decorative boundary fencing between the rail yard and City owned property. Those cars include City of Cheyenne Engine No. 1242, Ol' Sadie (Circa 1890); UPRR Car No. FTSX812, 40' x 9', Caboose (Circa 1959), UPRR Car No. SP7077, 81' x 10', Pullman Business Car (Circa 1930). The track installation would



Concept Image of Phase 1A: Main Engine with Elevated Boardwalk.



Concept Image of Phase 1B: Main Engine with Elevated Boardwalk



Concept Image of Phase 1B: Criss-crossed lights over the plaza between Capitol Avenue and Carey Avenue

require construction of approximately 135' to place Engine No. 1242 and Caboose No. FSX812. This area could eventually house Engine No. 4004, Big Boy (Circa 1944) when the opportunity/funding becomes available. An additional 85' of track will need to be placed for UPRR Car No. SP7077 near Pioneer between the Gunslinger and Livery areas. The total estimate cost including design and construction using present value dollars is \$820,700.00. This does not include placement and refurbishment which is an additional \$733,000.00 from the EDA Grant.



Image to the Left: Aerial Image of Phase 1D with the opportunity for additional Outdoor Plaza or during other events, parking.



Image to the Right: concept Image of Phase 1D: Multiple Train cars in "Horseshoe" Pattern Creating an Outdoor Plaza.

Phase 1B (East Parking Lot and Platforms): In this phase, the goal would be to reconstruct the east parking lot and provide roadway improvements on 15th Street between Capitol Avenue and Pioneer Avenue. The roadway improvements include grading, drainage, pedestrian path, greenway extension, landscaping buffer and decorative pedestrian, train, vehicle and street lighting. As part of the street lighting it would also include the criss-crossed lights over 15th Street similar to 17th Street. This phase would also include the viewing platforms for the trains that were placed in Phase 1A. The total estimate cost including design and construction using present value dollars is \$1,455,000.00.

Phase 1C (West Parking Lot): The goal is to lease or potentially purchase the site near Bent Avenue to provide a paved parking lot. This would be the West Parking Lot. This phase would include grading, drainage, pavement, landscaping buffer, pedestrian path, greenway extension, and decorative pedestrian, train, vehicle and street lighting along 15th Street between Bent Avenue and O'Neill Avenue. The total estimate including design and construction is \$1,316,450.00. This cost does not include potential lease or purchase costs for the land.

Phase 1D (Plaza): Further down, a plaza would be created that would house additional train cars that could be leased for businesses. This phase would include faux track, placement of up to four (4) Pullman cars, and the development of infrastructure for utilities for future businesses. The plaza is integrated with Gunslingers and the plan would also include a central restroom building. The plaza is a multi-use destination for community engagement and socialization. It activates the area for people to gather and interact with the space. While parking lots are necessary, creating buffer zones with landscaping, fencing, and pathways create a more pleasant environment to gather and traverse. The total estimate \$5,835,000.00 which is based on a square foot cost developed from a similar project and adjusted for inflation.

Phase 1E: Additional railcars to be added for additional leasable area. These could be community spaces, rental lodging, or a whisky tasting room (with the Distillery across the street). The possibilities are endless. These areas create a safety buffer and an aesthetic buffer between the street, pathways, and parking.



Image to the Left: Concept image illustrating a new covered bridge that could lead to the existing round house.



Image to the Right: This interior concept of the covered walkway would have multiple viewing points with glazing to look out above over the active railway.

Phase 2: Provide a pedestrian overpass and viewing platform from the Depot to the Roundhouse. Provide glass for viewing and benches for sitting. This overpass provides an opportunity for the public to safely view and active rail yard.

Phase	Estimated Cost
Phase 1A (Faux Track & Train Placement)	\$ 820,700.00
Phase 1B (East Parking Lot & Platform)	\$1,455,000.00
Phase 1C (West Parking Lot)	\$1,316,500.00
Phase 1D (Plaza)	\$5,835,000.00

Future Planning/ Design Considerations: Additional design considerations and constraints were evaluated with the project. The Civil and Landscape Narratives will provide an in depth review for drainage, street sections, and parking. A summary of those items is provided below.

Buildable Area: One of the goals of the project is to maintain the current flow line of the south curb along 15th Street. Changing the curb line affects drainage in this area and shrinks the sidewalk and parking on the south side of 15th Street. By maintaining the curb line, this limits our 'buildable area' in the right-of-way but maximizes parking and pedestrian circulation. The train cars will need to be installed south of this line. This also limits the street section for the project. The right-of-way, needs to accommodate, parking, fire truck access, bicycles, improved pedestrian areas, and potentially one-lane traffic.

Vehicular Circulation & Parking: Parking is an overriding concern for businesses and tourists alike. The City is discussing the possibility with Union Pacific to purchase or lease the property between Bent Avenue and O'Neil Avenue for additional parking. There are many considerations when implementing any change to the parking on 15th Street. One of the challenges is the number of driveways and access points to 15th Street. In order to maintain visual and spatial clearance when pulling out of these drives, the diagonal parking has to be spaced further away to not block the view. Accordingly, not as many spaces were added by changing from parallel parking to diagonal parking on the road. In subsequent iterations, 9 foot wide parking stalls can be reviewed to maximize that number. Another item for study is how many trailer/bus parking spaces should be provided. One of the businesses currently leases space for parking trailers, but it takes more space for trailer parking than traditional cars. Overall, there is a net loss of parking spaces, but the intent of the design is to be flexible for big events so that more parking can be utilized.







Civil Narrative

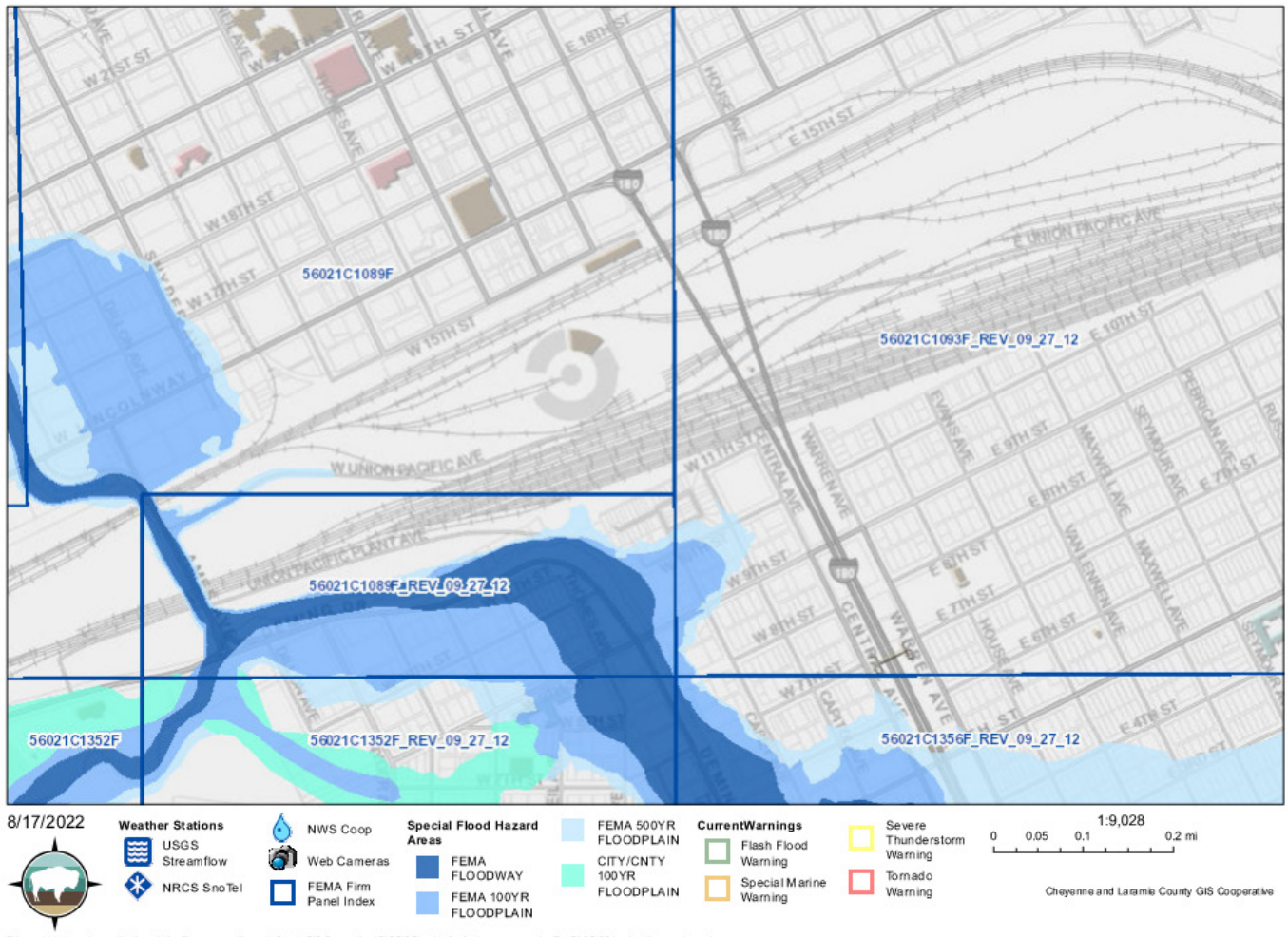
2 CIVIL NARRATIVE

General: 15th Street is located south of downtown Cheyenne, just north of the Union Pacific Railroad rail yard. The project includes the redevelopment of City Property situated between 15th street and the rail yard fence. The development will extend from the intersection of 15th Street and Bent Avenue and the existing Depot near the intersection of 15th Street and Capitol Avenue. This excludes the property currently owned by Union Pacific. The proposed development includes the installation of several rail car static displays and additional rail cars that are intended to be used for lodging, retail, and food sales.

15th Street - Bent to Capitol



Domestic Water: The Cheyenne Board of Public Utilities is the domestic water service provider to the site. There is an existing water meter near the Gunslingers facility and fire hydrants located along the length of 15th Street at each block. There is a 12-inch Ductile Iron Pipe in 15th Street from Bent Avenue to Capital Avenue with several laterals down the cross streets. Domestic water demands for the proposed development would be limited to the rail cars designated to be used for lodging or retail. Minor irrigation demands are also anticipated. It is assumed that there is sufficient capacity for the proposed development within 15th Street.



Connections to the existing water system will require review by the Cheyenne Board of Public Utilities and a permit to Construct. All new facilities will be equipped with backflow preventers per Wyoming Department of Environmental Quality Rules and Regulations.

Fire flows are anticipated and will need to be calculated based on the construction type of the rail cars. Building fire service lines are required to be a separate connection to water mains. There are enough fire hydrants along 15th Street to provide overall site coverage and new hydrants are not anticipated.

The City of Cheyenne requires that a development plan be reviewed and signed by the Fire Department, verifying the required fire flow and locations of fire hydrants, building fire line, and fire department connection. Construction plans for water mains, domestic taps, fire lines, water meters, and fire hydrants are submitted to the City of Cheyenne during the Engineering Plan Review Process.

Sanitary Sewer: The Cheyenne Board of Public Utilities is the agency that accepts sanitary sewerage from the downtown. Existing sanitary sewer infrastructure in 15th Street includes a 12-inch Vitrified Clay Pipe (VCP) from Thomes Avenue to Pioneer Avenue and a 14-inch VCP main from Capitol Avenue to Pioneer Avenue. At the intersection of 15th Street and Pioneer Avenue, wastewater is conveyed southeast under the Union Pacific Railroad rail yard. As the proposed wastewater demands are anticipated to be minimal, there appears to be sufficient capacity in the existing sanitary sewer system for the proposed development. If there are improvements within 15th street, there may be opportunity for coordination between the City of Cheyenne and the Board of Public Utilities to replace portions of the existing VCP sanitary sewer with modern PVC pipe.

Sanitary sewer service lines are anticipated for all rail cars intended to be used for lodging, retail, or food sales. Cars with food prep or kitchenettes will be required to be routed through a centralized grease interceptor prior to discharging into the sanitary sewer main.

Storm Sewer: There is existing storm sewer along the length of 15th Street. Currently, 15th Street has a cross slope, from south to north, such that all runoff is conveyed to the northern curb line and routed to various curb inlets. According to the Laramie County Floodplain maps, the project area does not currently lie in a FEMA of City floodplain or floodway. It is anticipated that the majority of the proposed project area can be drainage via sheet flow from the south to the north and directly into 15th Street. For isolated pockets, area drains, and small diameter storm sewer infrastructure may be utilized to prevent ponding.





If future imperviousness is maintained to a level equal to, or less than the current site imperviousness, then detention will not be required. However, it is the desire of the City Engineering department to provide Low Impact Development (LID) features where practical. Anticipated LID features include; bioswales, bioretention, sand filters, and proprietary systems (Stormceptor™, Filterra™, and EcoPure BioFilters™).

Site Grading: Currently, the site is generally flat. This will facilitate the development of accessible plazas and courtyards, however, may present drainage challenges. This can be overcome by additional area drains and local depressions. Plazas and turning areas should be maximum of 2% slope in any direction while paths should have a maximum slope of 5% with a cross slope no more than 2%.

Roadways: Minimal improvements are anticipated within 15th Street beyond restriping and adjustment to existing parking lanes and drive lanes. It is expected that the road will be converted to a one-way drive with on-street diagonal parking similar to adjacent roads. Additional improvements may be along the southern curb line and sidewalk for pedestrian improvements as well as patching within the street for new utility connections.

Railroad Car Foundations: Standard rails/ties will be utilized for the foundations for all rail cars. These designs should be based on standard railroad details and dimensions but not specifically designed for operating trains. Foundations and other permanent structures will be located at least 20-feet from water mains and 10-12 feet from sewer mains based on sewer depth.





Landscape Narrative

3

LANDSCAPE NARRATIVE

AN EXTENSION OF LEGACY AND CONNECTIONS FOR THE FUTURE

As described in the executive summary, Cheyenne’s roots are firmly panted around the development of the rail line. Not only did the “Magic City on the Plains” grow rapidly around the newly founded railroad town, but it’s location became an important connection point for Denver to the South, Kansas City to the East and, as of late 1867, the Transcontinental Railroad to the West. Newly discovered coal deposits in Wyoming made the connection even more vital to the growth of the area. Union Pacific was able to expand and use Cheyenne as a base for helper locomotives to clear tracks before the push through Evans Pass. While passenger traffic declined over time and the Cheyenne Union Pacific Depot was donated and transformed into the Cheyenne Depot Museum, the historical building and Depot Plaza remains an essential cultural location.

Much of the excitement and potential surrounding the 15th Street Corridor development is founded in these cultural and economic connections. Depot Plaza hosts Fridays on the Plaza, the Pancake breakfasts for Pioneer Days, a stop along the Grand Parade route as well as many events in and around the Museum. The planned temporary closure of certain streets around the square, including part of 15th Street, allow a glimpse of how visitors use public space when not impeded by steady vehicular traffic. Frequently, this usage is eating, drinking, singing, laughing and community building.



Aerial of Depot Plaza
Image credit: sanelo.com



Fridays on the Plaza
Image credit: cheyenne.org



Pancake Breakfast during Pioneer Days
Image credit: cfdrodeo.com



Concert at Depot Plaza
Image credit: cheyenne.org

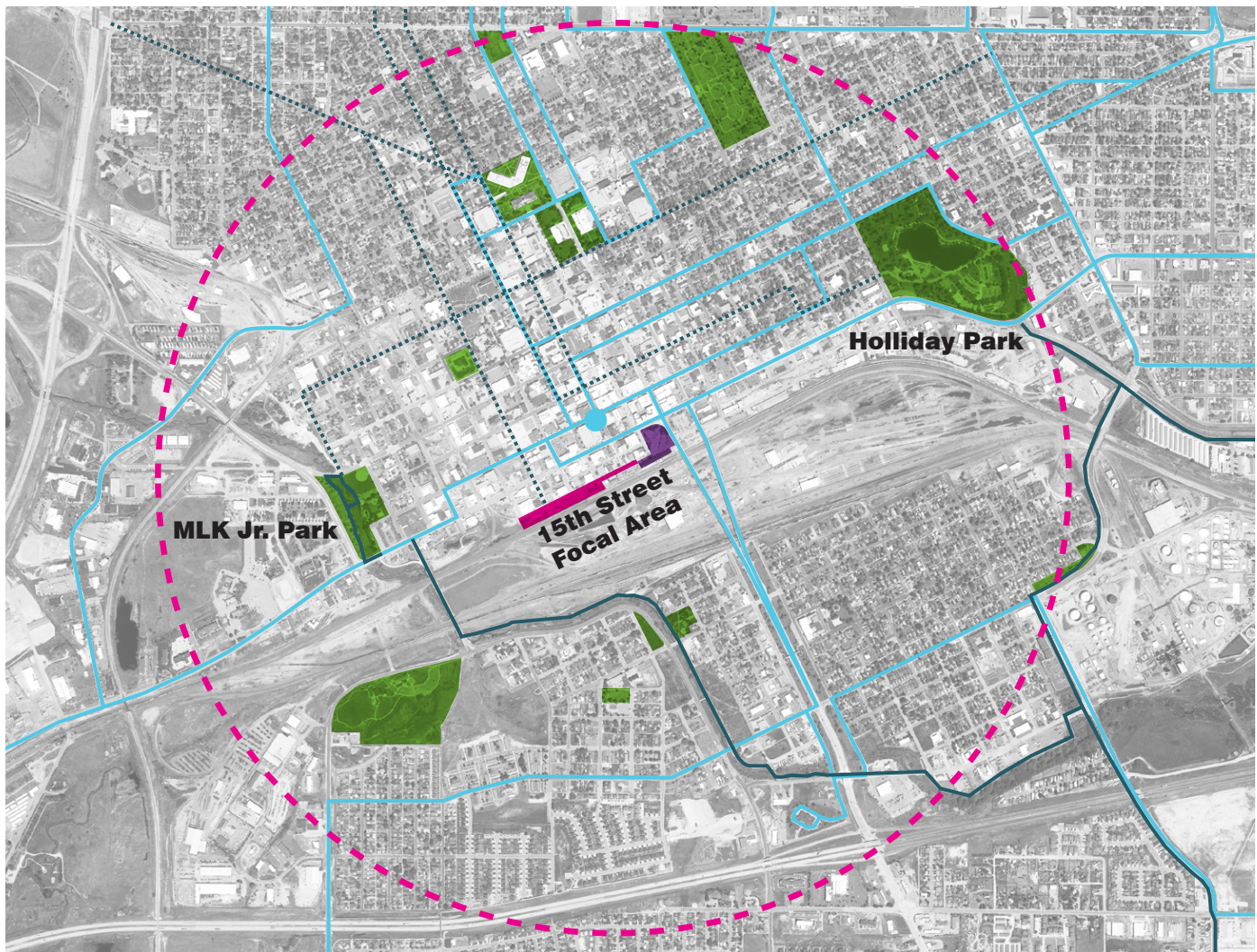
The 15th Street Feasibility Study has been undertaken to explore possibilities on how to grow and extend these great community spaces as well as establish new connections to the Greenway and Downtown pedestrian areas. The concepts presented in this package are focused on creating a pedestrian and Greenway priority design. While these studies also include increased parking and maintain vehicular access in most areas, 15th Street has great potential to expand the capabilities and attraction to Depot Plaza, extend the Greenway to begin a connection from West to East, increase foot traffic for local businesses and create a dedicated outdoor public space to celebrate Cheyenne's rail history.

The project area has specific dimensional restraints from existing conditions, but this study illustrates how there are several possibilities and approaches to create new magic for the City of Cheyenne.

EXISTING CONDITIONS AND UNDERSTANDING OPPORTUNITIES

It is always important to understand the surrounding context and its history when examining future possibilities. Using Depot Plaza as a focal point, there are several important landmarks and spaces within a 1 mile radius.

From a transportation standpoint, the main bus transfer station is only 2-3 blocks away. Six routes extend out from this location and reach the edges of the city. At the time of this report, CTP is conducting a study and receiving community input for an updated Transit Development Plan. Their goals post-COVID are focused on increased access, refined fixed routes and expanding ridership. With increased ease of use and access, as well as fuel and vehicle costs, these efforts all point towards more ridership. Currently, it is the second most used transportation method behind personal vehicle usage and is most used for “multipurpose” reasons. Those using this method of public transit for work, shopping, and social/recreation reasons, will frequently find themselves close to 15th Street.





Union Pacific's 4-8-8-4 Big Boy #4004 in Holliday Park - ~0.80mi
Image credit: rgusrail.com



Part of Cheyenne Greenway
Image credit: capcity.news



EdgeFest at Civic Commons Park - ~0.50mi
Image credit: capcity.news



Downtown Cheyenne
Image credit: Shane Fagan

Larger public green spaces or parks are harder to locate nearby. Within the 1 mile radius, there are open spaces near civic buildings, natural areas along Crow Creek, Holliday Park to the East and a few smaller parks. While several of these spaces are large, there is opportunity to turn 15th Street into a linear park where people can gather and connect to other social spaces.

The Cheyenne Greenway and cycling network, growing and getting better through City efforts, is an important component of this study. There is a gap from the main trail from Martin Luther King Jr. Park towards Holliday Park along the rail yard, which acts as a major North/South barrier. 15th Street can add a portion of Greenway to kickstart a direct connection between the two parks. This study explores methods to change the existing street section and accommodate this connection.

It is also essential to understand how this development can extend and plug into the larger pedestrian network north of the 15th Street area. The main Downtown shopping, eating and drinking area is North towards the Capitol Building. Making this connection comfortable for pedestrian foot traffic increases business for local shops and the overall walkability of the Downtown area.



Albany Bar and Restaurant across from Depot Plaza
Image credit: Shane Fagan



Various businesses along 15th Street
Image credit: Shane Fagan

Looking directly adjacent to 15th Street, the 6 blocks from Bent Ave to Depot Plaza and Lincolnway to 15th Street contain a vibrant and growing business community. This area boasts multiple breweries, distillers, bars, the Wyoming Business Council, an Art Gallery, metal shops, barber shops, grocers, record shops, cookie and cupcake shops as well as other retail, service and industrial businesses. Due to the range and variety of needs, maintaining access is essential while increasing foot traffic. The traffic report conducted in the Summer of 2022 determined it is possible to make 15th Street one-way (West-to-East), allows the inclusion of a greenway bike path and new parking orientation. Currently, there is a Greenway dead end to the West, just South of Martin Luther King Jr. Park. This connection can be made along Lincolnway, or through a Union Pacific parcel West of Bent Ave. This connection is a start to the West to East connection North of the rail yard. Additionally, there is an opportunity to make 15th Street between Carey and Capitol closed to traffic on a seasonal or event basis. It is already frequently closed for events at Depot Plaza. Design efforts would be made to pedestrianize this segment, while maintaining parking access when open.



- Depot Plaza
- 15th Street Study Area
- Carey Ave to Capitol Ave Closure

- Ex. Traffic Direction
- Ex. Bike Sharrows
- Greenway Opportunities



15th Street close to traffic during a Pancake Breakfast
Image credit: Shane Fagan



15th Street close to traffic during a Pancake Breakfast
Image credit: Shane Fagan



Proposed section of 15th Street for Seasonal and Event Closure
Image credit: Shane Fagan



15th Street meeting Depot Plaza during Pioneer Days
Image credit: Shane Fagan



Large parking lots along 15th
Image credit: Shane Fagan



Sharrows and Parking on Carey Ave looking North
Image credit: Shane Fagan

RE-IMAGINING THE 15TH STREET SECTION

In addition to the design around the proposed Legacy Trains and linear park along 15th, the transformation of the street section itself is important to understand. There are a variety of ways to approach adjusting a streetscape. Multiple options have been studied as well as various elements that can be included for safety. Overall, the goal is to maintain access for the various businesses as well as future attractions, increase parking where possible, insert a path for cyclists and to make pedestrians the highest priority. As the project moves to the concept level, all of these elements should be investigated further. This study is focused on the high level concept of transforming 15th Street, areas with the highest potential to create an inviting environment and it's overall feasibility.

The opposite page illustrate the existing condition of 15th Street. This focal area is a sample area and not representative of the entire street. This ideal section and plan, shows the overall existing capabilities for most of the street and where to begin making adjustments. Currently, 15th is a two-way street. The North side of the street contains the only on-street parking other than about 5 spaces on the South side between Carey and Capitol. These parallel parking spaces are arranged between driveways to existing lots and curb extensions. Local business requested that these on street parking areas convert to a 45 degree style parking organization to add additional parking. Street trees are planted on both sides of the street. Visually, the trees on the South look younger and are much smaller. Tree growth is slow in Cheyenne due to water and weather conditions, so it would be ideal to leave them undisturbed. North and South both have sidewalks, with the South sidewalk either adjacent to existing parking lots, Union Pacific property or Gunslingers.



View East along 15th
Image credit: Shane Fagan



View Northwest on 15th
Image credit: Shane Fagan

South Buildings

various adjacent land use

sidewalk

young street trees

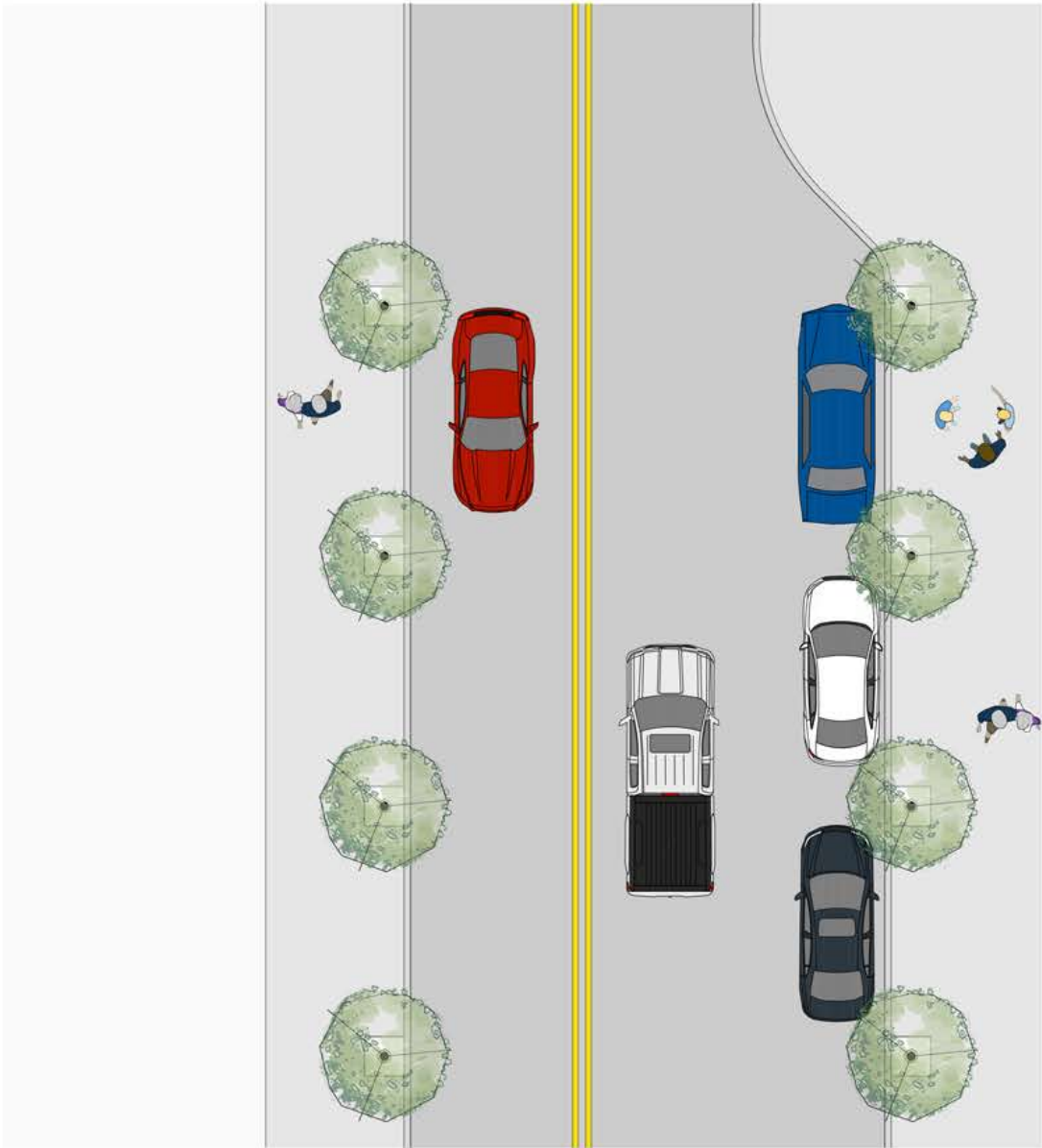
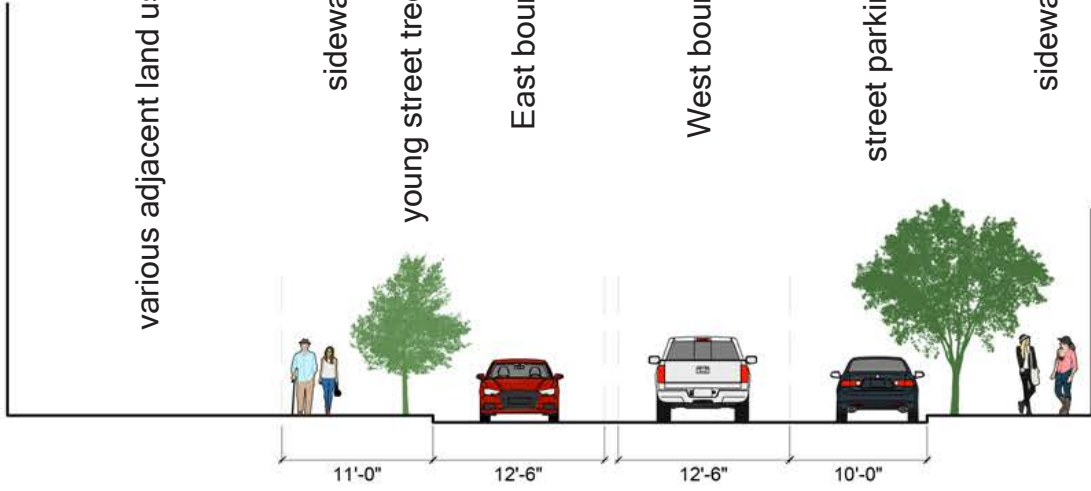
East bound

West bound

street parking

sidewalk

North Buildings



STREET SECTION CHANGES - OPT 1

Option 1 is an effort to keep the existing curb to curb distance, approximately 36' including the parallel parking spaces. Local businesses requested to increase on street parking by changing the parallel parking spaces to a 45° orientation. Through study and discussions with the city, the parking offset from the North curb face can be adjusted to 15'-9" to leave just over 20' of clearance for fire truck access. Within this 20' clearance, the proposal is to use 10' for the vehicular travel lane and 10' for a two-way Greenway lane.

Main benefits for this arrangement are:

1. Maintaining the South curb line position. This maximizes the usable space for the linear park. As seen in later diagrams, the Rail Yard fence is a hard project boundary and to accommodate new parking lots for the park, there will be limited space to include the train cars and habitable space while leaving the sidewalk clear.
2. A dedicated two-way cycling lane. The Greenway lanes are important long term for a West-East connection North of the rail yard. There is no clear way of pushing the proposed Greenway along the rail yard fence due to parcel ownership and spatial issues with park, so allowing it to occupy space on the street maximizes space for the future linear park. Additionally, a painted lane is a visual barrier to demarcate where vehicles should not be. While there are safety issues to consider without a physical barrier, the narrowing of the travel lane typically causes drivers to slow down and be more aware of pedestrians and cyclists. There are options for physical barriers later presented in this study that can be considered during the concept stage that will need to work with clearance and snow removal requirements.

Issues for consideration:

1. Oversized pickup trucks may jut into the travel lane, depending on how close they park to the curb. This can be remedied with restrictive signage and pavement markings.
2. As mentioned above, there are safety issues with no physical barriers between the travel lane and the Greenway.



Painted Two-way Bike Lane
Image credit: Wikimedia Commons



Two-way Bike Lane along single lane of traffic
Image credit: @travelarium

South Buildings

various adjacent land use

sidewalk

young street trees

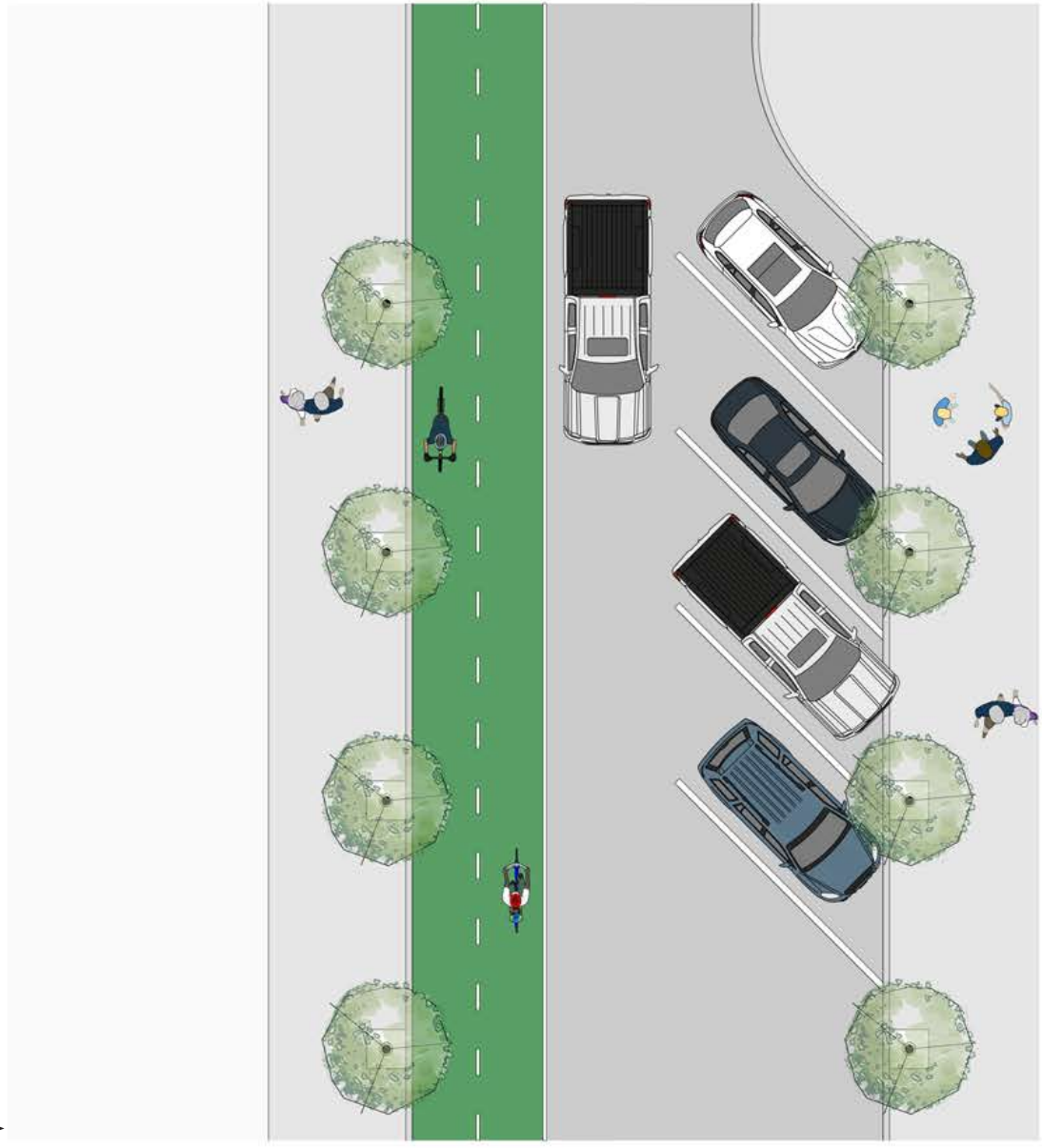
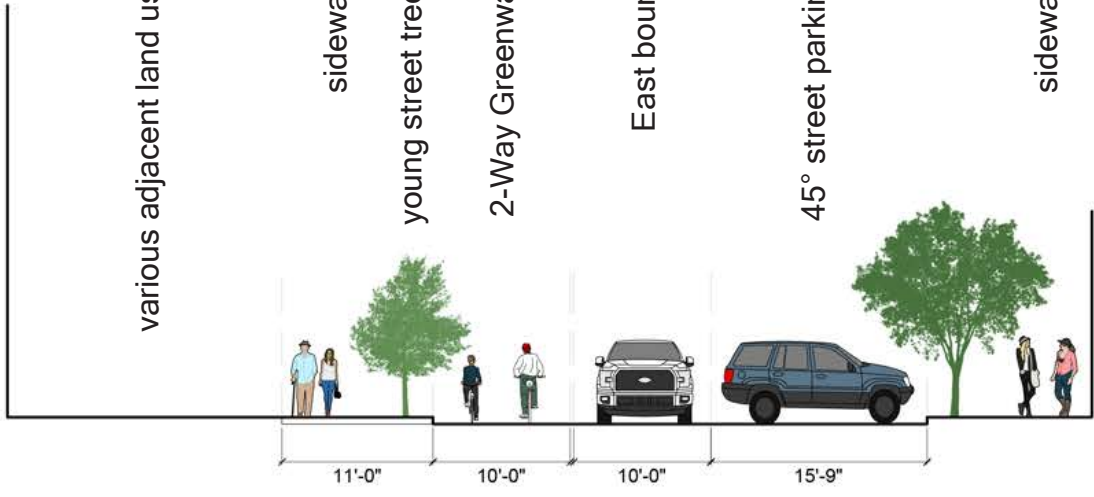
2-Way Greenway

East bound

45° street parking

sidewalk

North Buildings



STREET SECTION CHANGES - OPT 2

Option 2 also maintains the existing curb to curb distance. The North side will convert the parallel parking spaces to the 45° orientation leaving the remaining road space for vehicular and cyclist travel. The clear difference is the inclusion of a sharrow for cyclists instead of the dedicated Greenway. While this a simpler option, it is less safe for the cyclists and prone to faster movement by vehicles. Additionally, a contraflow lane would be required to allow Westward travel by cyclists, so option 2 leaves only one direction of travel for cyclists. This is a major negative when considering the goal to initiate a West-East Greenway connection North of the Rail yard.

Main benefits for this arrangement are:

1. Maintaining the South curb line position. This maximizes the usable space for the linear park. As seen in later diagrams, the Rail Yard fence is a hard project boundary and to accommodate new parking lots for the park, there will be limited space to include the train cars and habitable space while leaving the sidewalk clear.
2. Simpler construction and lower costs.

Issues for consideration:

1. Oversized pickup trucks may jut into the travel lane, depending on how close they park to the curb. This can be remedied with restrictive signage and pavement markings.
2. As mentioned above, there are safety issues with no physical barriers between the travel lane and the sharrow. Additionally, the lack of any visual or physical barrier may cause faster vehicular traffic in the travel lane, lowering overall safety for an area that may have a heavy pedestrian presence. Sharrows do not give the overall feeling that a cyclist should be in the road and will reduce users.



Painted Sharrow Marker
Image credit: therecord.com



Sharrow requiring interaction with vehicles
Image credit: therecord.com

South Buildings

various adjacent land use

sidewalk

young street trees

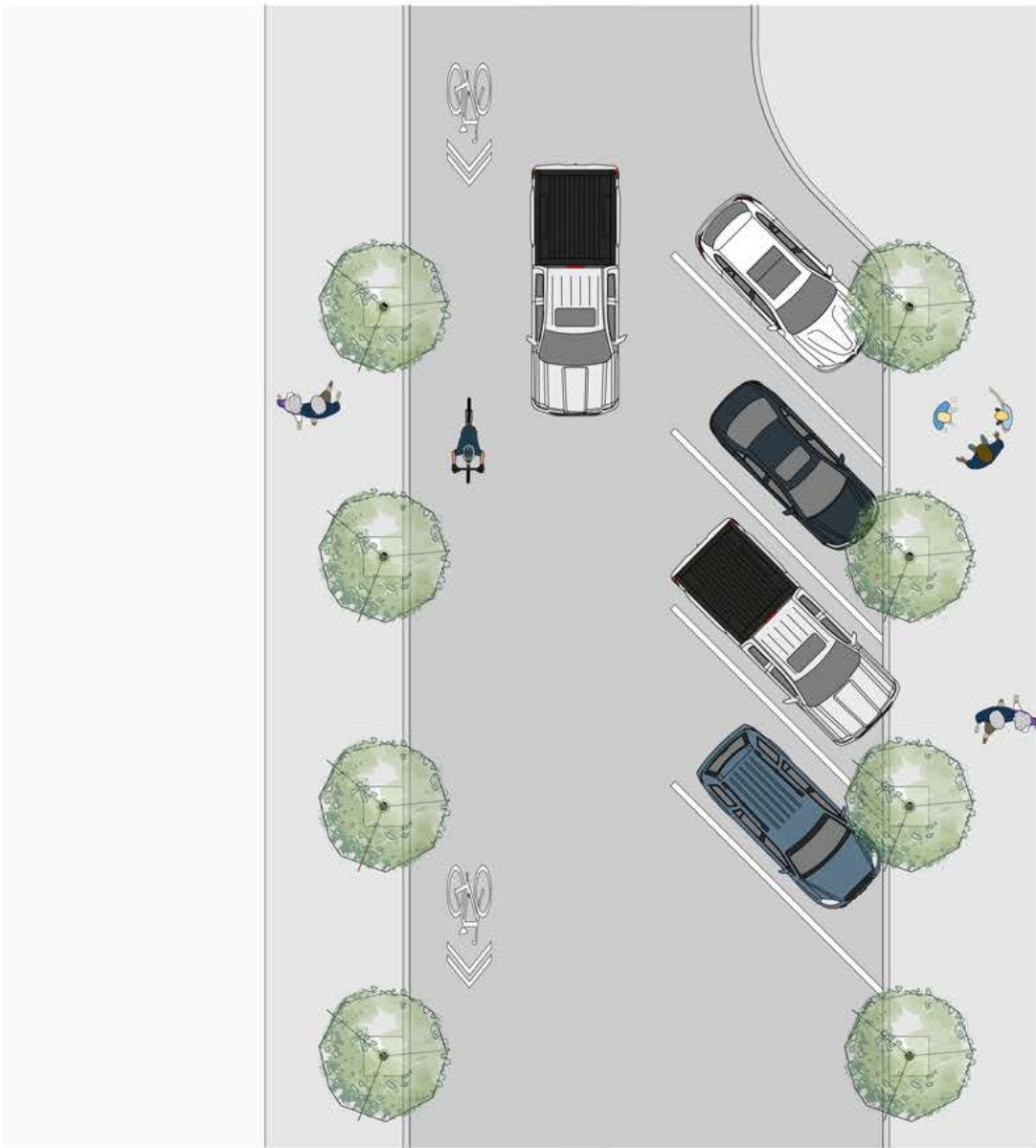
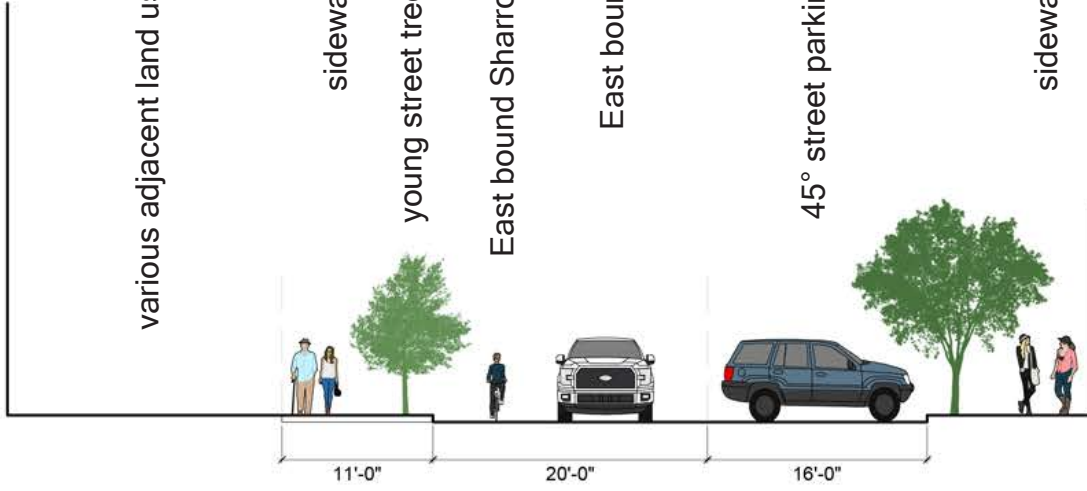
East bound Sharrow

East bound

45° street parking

sidewalk

North Buildings



STREET SECTION CHANGES - OPT 3

Option 3 is the first example of gaining room in the street section by adjusting the South curb line. The two foot shift in the curb to the South adds room for a barrier between the vehicular travel lane and the two-way cycling path. While physical barrier options are not included, there is space for discussion on flex bollards at strategic positions that will not affect fire truck clearance. The additional space and visual barrier increase safety for those on the Greenway and typically causes vehicle to slow down due to the tightening of the travel lane. Further concept development would need to determine if the sidewalk at 9' is ample, or needs to be extended, reducing the usable space for the linear park.

Main benefits for this arrangement are:

1. A dedicated two-way cycling lane with an additional buffer. The Greenway lanes are important long term for a West-East connection North of the rail yard. There is no clear way of pushing the proposed Greenway along the rail yard fence due to parcel ownership and spatial issues with park, so allowing it to occupy space on the street maximizes space for the future linear park. Additionally, a painted lane is a visual barrier to demarcate where vehicles should not be. While there are safety issues to consider without a physical barrier, the narrowing of the travel lane typically causes drivers to slow down and be more aware of pedestrians and cyclists. There are options for physical barriers later presented in this study that can be considered during the concept stage that will need to work with clearance and snow removal requirements.
2. The buffer strip also increases safety for the cyclist moving opposite of the vehicular traffic.

Issues for consideration:

1. Oversized pickup trucks may jut into the travel lane, depending on how close they park to the curb. This can be remedied with restrictive signage and pavement markings.
2. As mentioned above, there are safety issues with no physical barriers between the travel lane and the Greenway. Example in a buffer lane are shown on a later page.

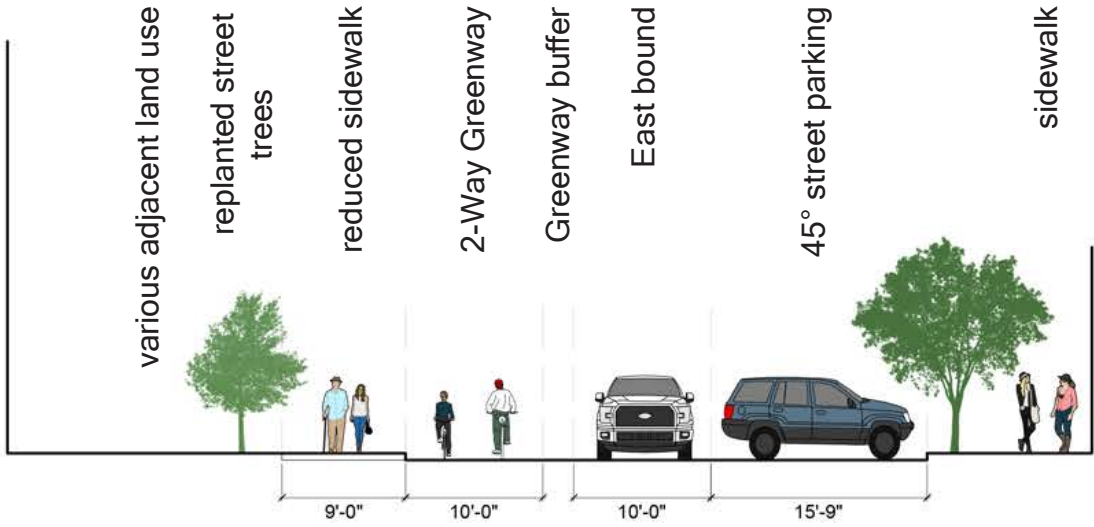


Two-way lane with buffer
Image credit: tapinto.net

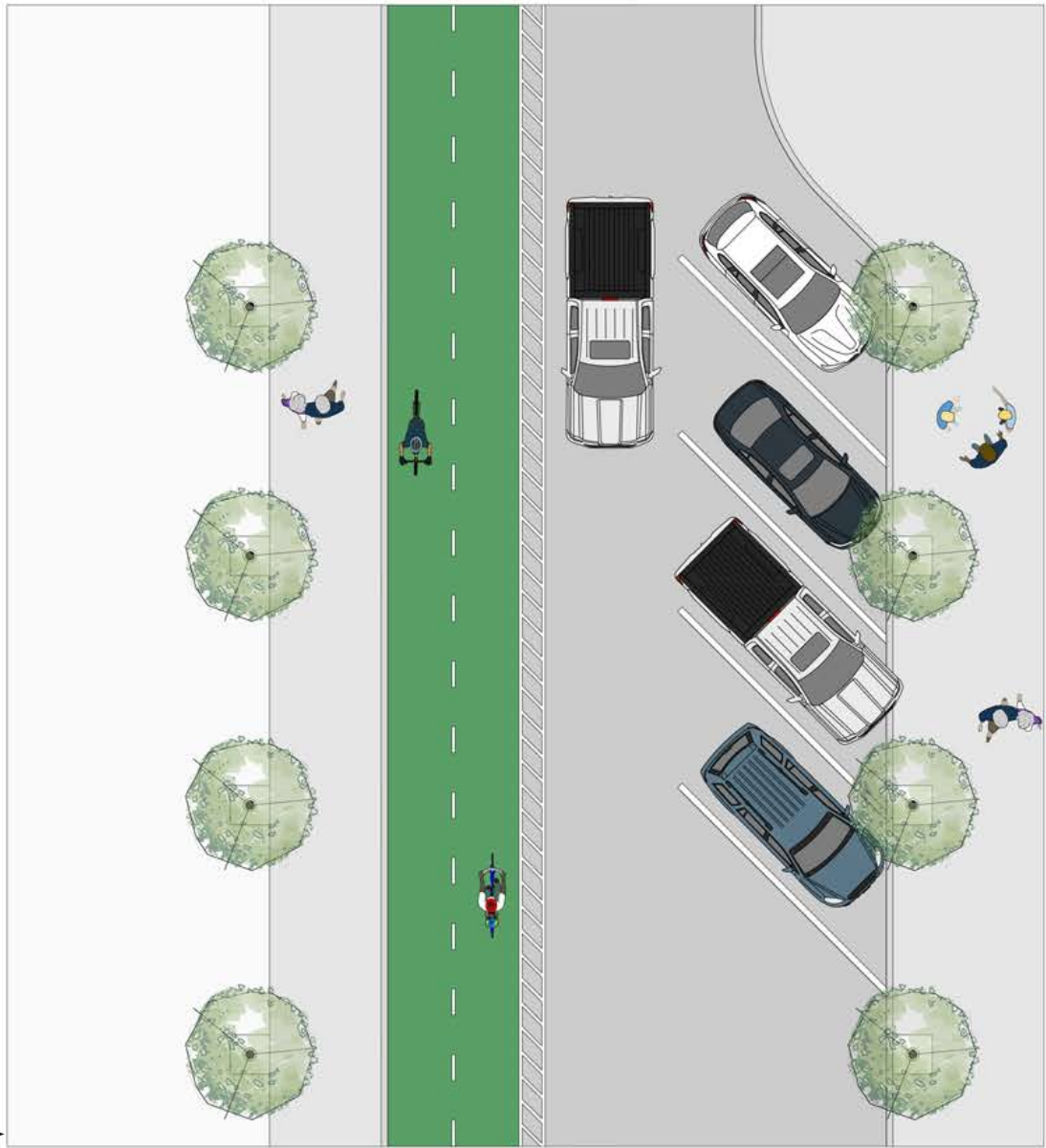


Two-way buffered bike lane
Image credit: piperpartners.com

South Buildings



North Buildings



STREET SECTION CHANGES - OPT 4

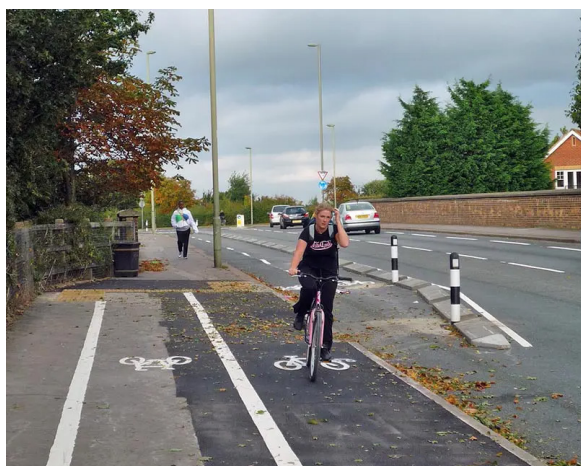
Option 4 is the second example of gaining room in the street section by adjusting the South curb line. The 5' shift in the curb to the South allows enough room to put a full two-way greenway slightly elevated above the street level. The additional space and curb increase safety for those on the Greenway. This reduces the existing sidewalk to 6', excluding the space for street trees and would require the linear park to absorb more of the direct pedestrian traffic. The intersection of sidewalk, linear park space and street trees would need to be designed in a way that there is enough room for movement, while maximizing shade and collection points at the future engine positions.

Main benefits for this arrangement are:

1. A dedicated two-way cycling lane with a curb buffer. The Greenway lanes are important long term for a West-East connection North of the rail yard. There is no clear way of pushing the proposed Greenway along the rail yard fence due to parcel ownership and spatial issues with park, so allowing it to occupy space on an extended curb dedicates more space to pedestrians and cyclists. A painted surface or ground material change would be needed to clarify where pedestrians should avoid or be alert. While there are safety issues to consider without high vertical barrier, the curb will clearly denote where cars should not be. An addition of street trees on the South side of the greenway will both cause most cyclists to slow down as well as provide a clear sight line on the appropriate path of travel for pedestrians.
2. More overall space dedicated to pedestrians and cyclists while minimizing parking lot impacts.

Issues for consideration:

1. Consideration at driveway aprons must be given to make it clear to vehicles that there are greenway lanes.
2. There are still safety issues with no vertical physical barriers between the vehicular travel lane and the Greenway. A curb will deter most issues, but a vehicle can still jump the curb if out of control.



Bike Path on Curb
Image credit: cyclinguphill.com



Path crossing driveway access
Image credit: aviewfromthecyclepath.com

South Buildings

various adjacent land use

replanted street trees

extended sidewalk

2-Way Greenway

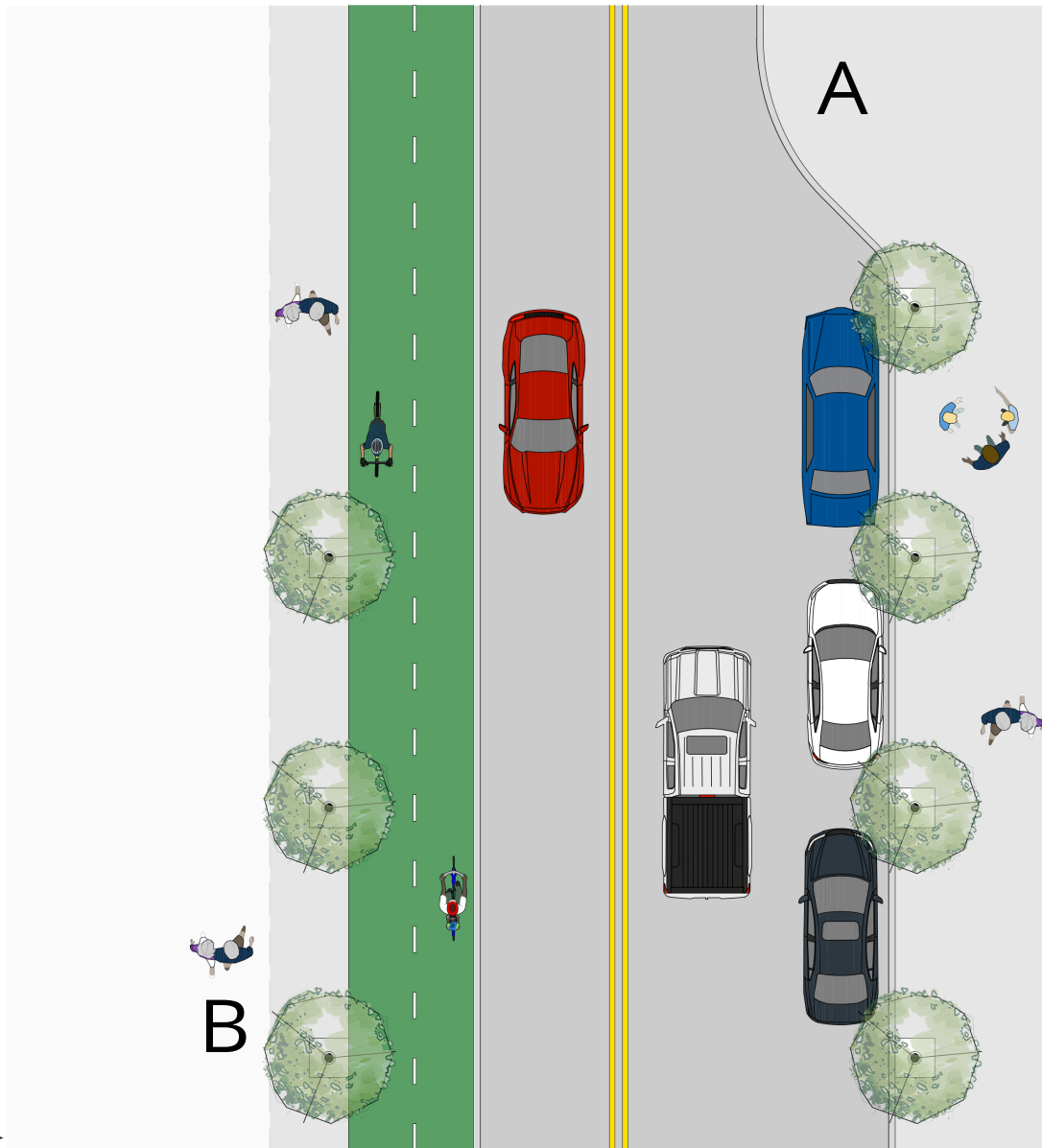
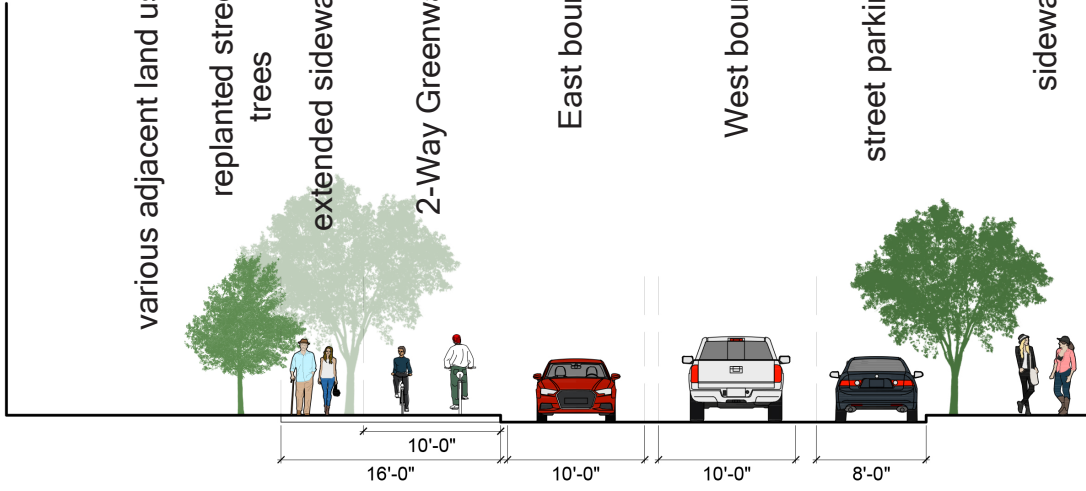
East bound

West bound

street parking

sidewalk

North Buildings



Bike Lane Physical Barriers, Clearance and Seasonality

Pedestrian and Cyclist safety is the top priority when attempting to introduce or adjust a street to be multi-modal. An ideal version of this project has people, bikes and vehicles moving around and by the future linear park in safe union. Everyone is very aware of each others movement and slowly navigate past one another. However, this is not a typical situation many from Cheyenne will be familiar with and it is always better the err on the side of caution and safety. A heavy barricade between vehicles and those on the Greenway would be appropriate, but due to spatial constraints and fire truck clearance requirements, the 15th street adjustments for a Greenway inclusion will need to be fairly exposed.

There are different methods to allow a full 20' of clearance in the case a fire truck need to move through 15th Street:

1. Raised Curbs - These barriers use an angled curb that creates a slight elevation difference between the street and the Greenway. The change is a visible barrier and vehicles notice if their tire is touching the curb. Fire trucks and other vehicles are able to mount this curb in emergency situations.



Raised Bike Lane
Image credit: nacto.org



Raised Bike Lane
Image credit: nacto.org

2. Curb Barrier - Similar to the raised curb, the curb barrier are sloped curb sections that allow fire trucks to go over in an emergency situation, but day-to-day provide a visual and physical barrier. Breaks or channels allow for movement of water.



Segmented Curb Segments with reflectors
Image credit: bikeportland.org



Segmented Curb Segments
Image credit: triconprecast.com



Low Curb
Image credit: bikeportland.org

3. Flex Bollards, composites and combinations - There are many plastic and composite options. The next section discusses their viability with snow removal, but it is important to understand the variety of options available. Flex bollards, frequently combined with concrete curbing, is a lightweight option that still allows clearance if the city does not mind replacing them in the case they are run over. The main point of these is if a vehicle hit them, the sound will alert them to correct their steering or stop. They do not stop vehicles, but have a vertical presence the heavily reinforce the separation of vehicles and bikes.

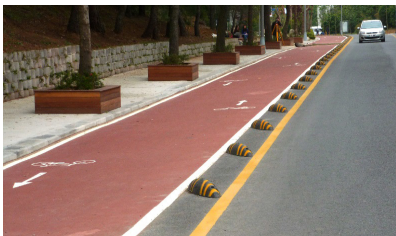


Flex Bollards on Curbs
Image credit: cyclo.to.ca

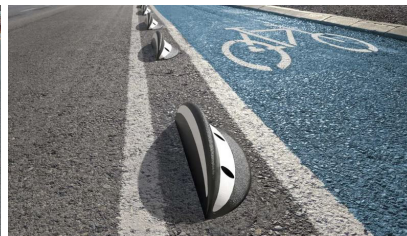


Flex Bollards on slim Curbs
Image credit: bikeeastbay.com

Composites come in a variety of forms from domes, fins, ridges and croissant shapes. They are durable, can be driven over in emergency situations and can have reflectors attached. They are less noticeable than flex bollards, but serve a similar protection as concrete curbs while being easier to replace if damaged.



Croissant Shapes
Image credit: zicla.com



Fin Shapes
Image credit: nico-europe.com



Short Ridges
Image credit: trafficlogix.com



Long Ridges
Image credit: nico-europe.com

The main issue with these options is how they can be maintained while still having proper snow removal. It is true that fewer people will be using the Greenway in the winter months due to the cold and wind, but if they are a part of the street, they should be maintained just as well as lanes for vehicles. This is a major difficulty in many parts of the globe. Several guidelines from cities with a large number of cycling commuters and intense winters have been released as well as a white paper from alta planning + design concerning best practices. These should continue as references through the design process of this project. In cities like Chicago, bike lanes with physical barrier similar to the three types noted here fall into two groups - Bike lanes are either large enough for a typical snow plow to move through after the main road has been completed, or a smaller plow is used for narrower lanes. The former leaves the buffer barrier as is and pushes the snow towards the sidewalk edge. The buffer remains unplowed, as the blades will destroy the curbs/composites. The latter uses a smaller plow for lanes less than 10'. Those are also done after the main road, and leave the barriers undamaged. In these cases, the flex bollard is a good choice as it helps guide the plows. Other cities like Montreal, remove the flex bollards during the winter so a plow can attack the street all at once. The flex bollards are replaced as it warms up and more cyclists are using the bike lanes. This is currently being reconsidered as it is frequently easier to plow the bike lane separately. As this project develops, Cheyenne plow capabilities will need to be considered

4. Shared Bicycle / Vehicle Lanes - Shared lanes are a common sight in Cheyenne. There are currently sharrows on Carey and Pioneer Avenues. Sharrows are a quick addition to a street indicating the shared use of a lane by cyclists and vehicles. While they are the least expensive and easiest to install, they are by far the least safe and do not encourage use of the bicycle network. Typically, only those very comfortable cycling use these lanes, however to build a strong network that reduces the number of vehicles on the road the design should be focused on children, older users and those who are not going to be traveling near the speed of vehicular travel. This speed, size and confidence discrepancy is where accidents can happen. Dedicated lanes to cyclists avoid a large truck not seeing a child or an aggravated driver passing a slower rider too close.

OVERALL PARKING COMPARISON

With parking being a major concern, a conceptual study was done to understand an initial comparison. New lots will change as the concept for the linear park develops, but initial numbers based on existing project boundaries are thus:

East Lot by the Museum:

There is an existing 51 spaces, with 3 of those being ADA spaces. The reduction is due to removing the Northern most row for future train car use. It will also maintain a single entry/exit location.

Street Parking:

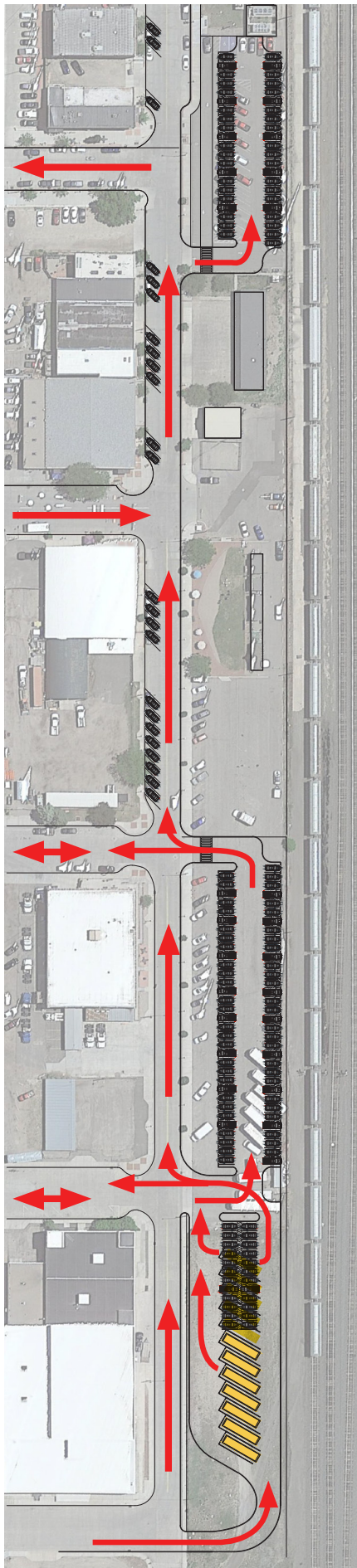
An interesting comparison in that, changing the parallel spaces to 45 degree parking only netted 3-5 extra spaces on the North side of 15th. This is due to several factors. There is no street parking on 15th West of Thomas Ave, so there is only about 27 spaces to transform. The other reason is clearance for the multitude of driveways. Vehicles pulling out of those drives need visual and spatial clearance, so an angled parking space cannot block them turning onto 15th Street. This will need to be studied closer with a measured survey. Additionally, further studies can review using a 9' wide parking space. Those shown are 9.5' wide.

West Lot:

This new lot will replace an existing lot that goes from the edge of the South sidewalk to the Rail yard fence. The new lot will need to reduce the overall number of spaces from around 90 to 67. There will be an ingress at the O'Neil Ave. intersection and the egress at Thomas Ave. The existing trailer storage at this lot will need to be revisited in concept and possible moved to the new lot.

New Lot:

There is a dirt lot South of 15th between O'Neil and Bent Avenues. There are an estimated 75 spaces in this location, but it is very informal and contains a variety of vehicle sizes and trailers. A normal lot here would be similar to the West Lot, so as a variable, a coach/bus lot was studied to understand the capabilities. With an entrance at Bent Ave, a 60 degree parking orientation would allow 12-13 spaces for buses, coaches or large trailers. Alternatively, there can be a different color of striping that can allow about 50 standard vehicles. This can be done in combination or solely for one type for specific events. There are a variety of ways to lay out this new lot, depending on the priority. A measured survey would be required to determine if there is ample room for coach turning radii. Additionally, alternates may be appropriate to avoid the West Lot ingress as there multiple points of intersection that can be avoided with a simpler layout, but would decrease the number of available parking spaces.



EAST LOT

Existing: 51 (3 ADA)

Proposed: 43 (~41, 4 ADA)

STREET PARKING

Existing: ~27 (Parallel)

Proposed: 30 (45°)

WEST LOT

Existing: 90, ~15 Trailer

Proposed: 67 (~65, 4 ADA)

NEW FUTURE LOT

Existing: 0

Proposed 60° Coach: 12-13 Coach

Alternatively: ~ 50 Standard Vehicles

REPAIRING SOILS ALONG THE RAIL YARD WITH PHYTOREMEDIATION

As concept design begins, it will be important to conduct sever soil tests within project boundaries, particularly along the fence line. Lands around railways and heavy industrial areas are often a victim of soil contamination. While there are several techniques that may need to be used if particularly bad, standard processes of site remediation and reuse can be labor intensive and costly. Phytoremediation can be a low cost remediation option that allows the use of plants to remove or stabilize a litany of contaminants from the soil and water table. Phytoremediation has been proven to be effective in the degradation or extraction of both organic and inorganic compounds associated with urban and industrial sites. In addition to degradation and extraction of contamination, phytoremediation also prevents contaminated solutions of groundwater or precipitation from leaching off site. Added biomass can also help stabilize soils and prevent contamination of neighboring areas from wind. As phytoremediation is an on-site process, soil integrity is maintained and the land can remain less disturbed than most remediation processes.

While the project will include large parking lots and a narrow linear park, there is great opportunity to find pockets near the rail yard fence to introduce these remediation plants for both soil health and education reasons. More information on this potential in the precedent.

Possible Contaminants Associated with Railways

Heavy Metals

- Lead (Pb)
- Cadmium (Cd)
- Copper (Cu)
- Zinc (Zn)
- Mercury (Hg)
- Iron (Fe)
- Cobalt (Co)
- Chromium (Cr)
- Molybdenum (Mo)

Polychlorinated biphenyls (PCBs)

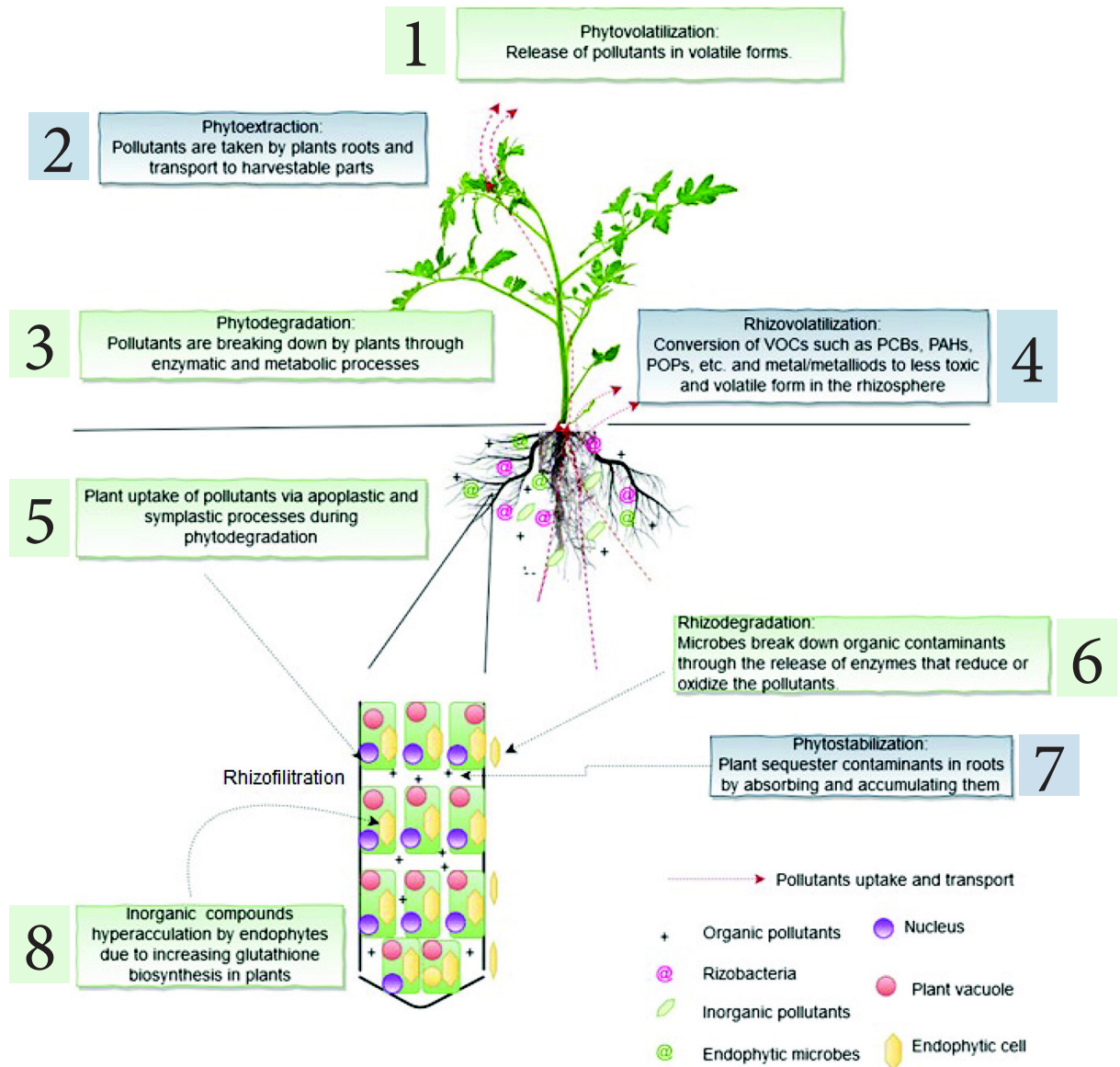
Chlorinated Solvents

Polycyclic aromatic hydrocarbons

- Creosote
- acenaphthy-lene
- acenaphthene
- fluorene
- phenanthrene
- anthracene
- fluoranthene
- pyrene
- chrysene

Petroleum Hydrocarbons (PHCs)

Fertilizers and Herbicides



Phytoremediation Mechanisms

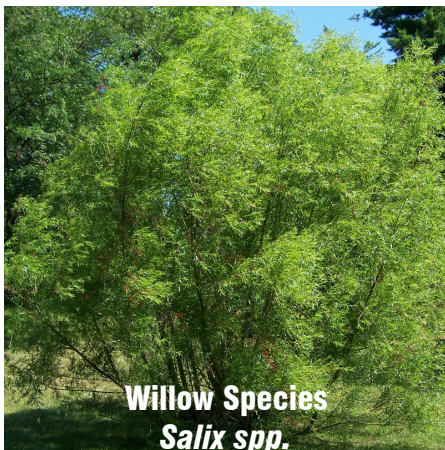
- | | |
|----------------------|-----------------------|
| 1. Phytovolitization | 5. Phytohydraulics |
| 2. Phytoextraction | 6. Rhizodegradation |
| 3. Phytodegradation | 7. Phytostabilization |
| 4. Rhizovolitization | 8. Rhizofiltration |

Phytoremediation

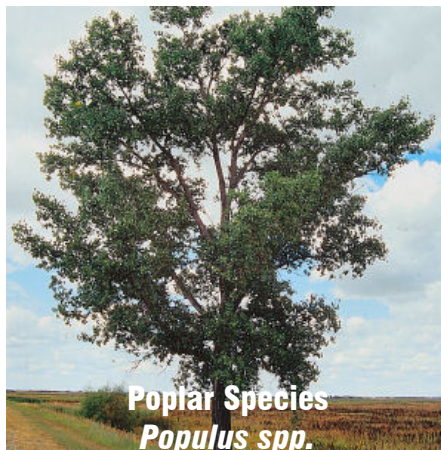
When preparing a phytoremediation planting palette, we must consider a few factors:

- Contaminant Concentration and Makeup (Soil Sampling)
- Plant Growth rate (Ideally fast growing)
- Root system characteristics (Concentration and Depth)
- Water Extraction (Thirsty plants allow for faster uptake)
- Climate applicability (Climatic factors allowing ideal growth)
- Arrangement and Density (Even application of remediation)

Native Plantings with Remediation Potential



Heavy Metals, PCBs, PHCs



Chlorinated solvents, PHCs



Pesticides, Herbicides, PCHs



PAHs, Heavy Metals



Heavy Metals

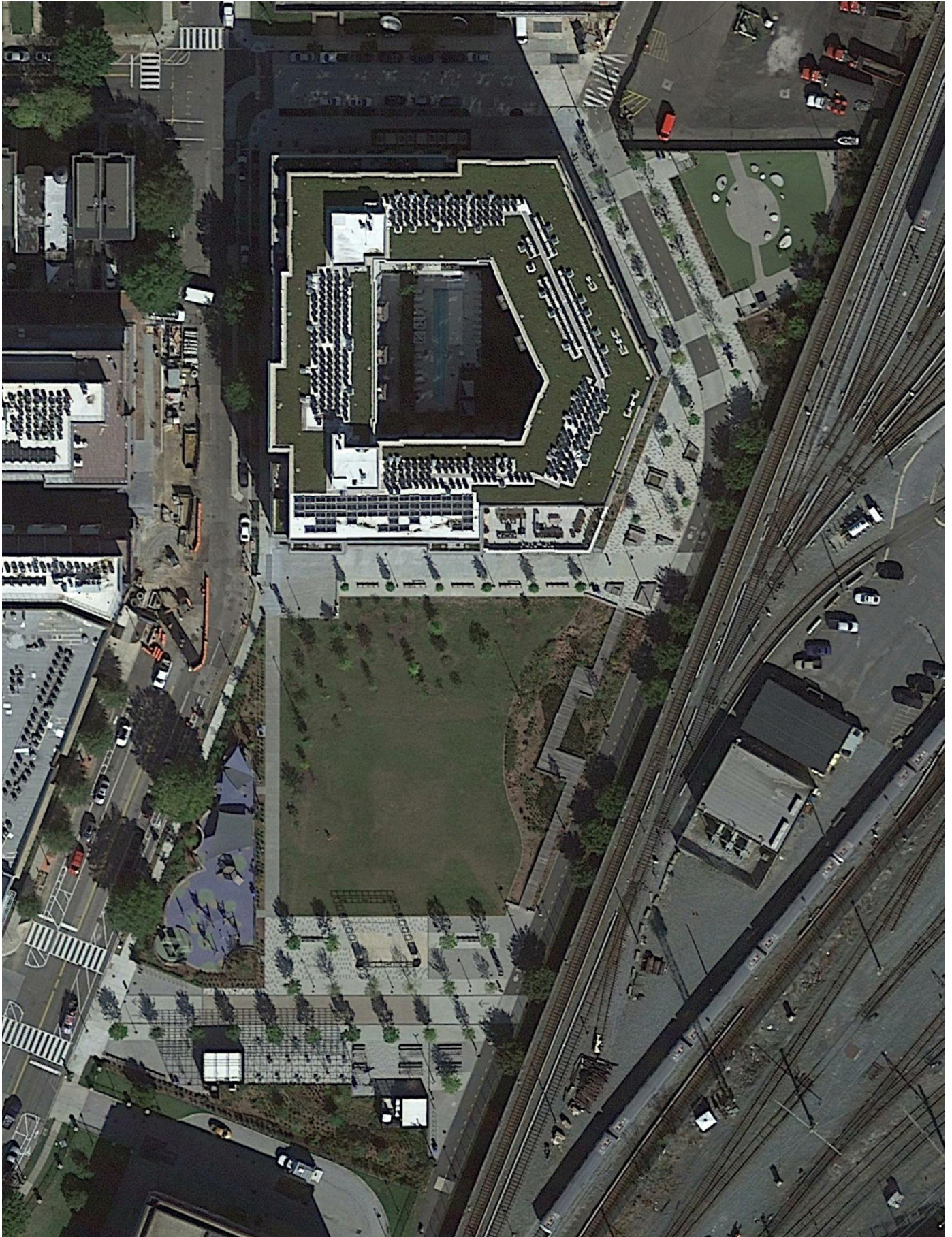


Heavy Metals, PAHs



Steel Yard - Providence, RI







ALETHIA TANNER PARK PRECEDENT FOR PHYTOREMEDIATION AND CYCLING

A fantastic project in Washington DC completed in 2020. This 2.75 acre park is a former rail spur and adjacent to the main line heading North from Union Station. The Metro Branch trail, a major cycling path for commuters and recreation also cuts through the site. The project found several opportunities to create spaces to keep the trail clear, while providing visual interest that encourages riders to stop and experience the park. Additionally, several steps were taken to address soil contamination. A majority of the site was capped, but the design team introduced several areas of phytoremediation gardens to tell the history of the site and educate visitors on methods to repair the soil through planting. It is worth understanding elements of this project that can apply to 15th Street and how to merge healing, education and attraction in a public space.





4

Architectural Narrative

Precedent Studies

Phase 1A

Phase 1B

Phase 1C

Phase 1D

Phase 1E

Phase 2

Roundhouse - Future Phases

4 ARCHITECTURAL NARRATIVE

Existing Railway Cars: The City of Cheyenne had the unique opportunity to obtain historic railway cars from Union Pacific Railroad (UPRR) and other rail cars that UPRR was looking to divest from its yard. The rail cars will be temporarily stored off site while they are undergoing refurbishment. There will be dining cars, several cabooses, and other train car types. Along with the UPRR rail cars, the City is contemplating moving the Ol' Sadie Engine 1242 from the Botanic Garden and in the future the Big Boy Steam Engine 4004 from Holliday Park.



Images Opposite Page: These are some of the existing railway cars that are candidates to be renovated, transported, and installed at one of the new 15th street sites. A 3rd party team who specializes in historic preservation and the relocation of railway cars will need to be contracted by the City to facilitate the move.





Ol' Sadie Engine 1242 was built in 1890 in New Jersey, this is Wyoming's oldest steam engine. The engine ran the Walcott-Saratoga-Encampment branch line from November, 1921 until May, 1954. The Union Pacific then donated the engine to the city. Surrounding the engine is a unique train folk art fence hand-constructed by Floyd Young, Sr., the last engineer driving Ol' Sadie. Signs along the fence tell the story of the locomotive and the train. Also look for the major stops that most trains made across the width of Wyoming that are etched in the concrete as you stroll around the outer fence. The Cheyenne Botanic Gardens is proud to have created a landscape that meshes the history of plants, people and the landscape. Ol' Sadie 1242, along with this wonderful historic fence is indeed a treasure for us all.

(Source: <https://www.cheyenne.org/listing/engine-1242/134/>).

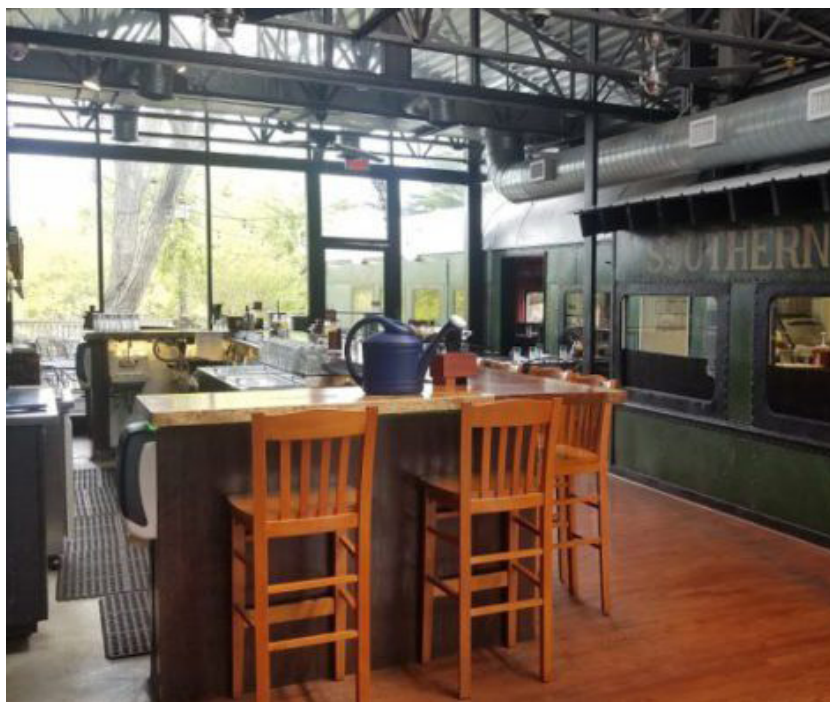
When the Union Pacific Railroad needed to tame the Rocky Mountains, they turned to the Big Boy Steam Engines. The powerful coal-fired engine was designed to pull a 3600-ton train over steep grades without helper engines. Even in retirement, Old Number 4004 remains an imposing sight. Visitors can see Big Boy, the world's largest steam locomotive, year-round in Holliday Park. Big Boy is one of only eight such remaining locomotives on display in the U.S. These engines will be historically restored to become an interactive experience for the visitors and be placed nearest to the Depot and the Museum

(Source: <https://www.cheyenne.org/things-to-do/trains/big-boy-steam-engine>).



Image above: This photograph illustrates an important concept for renovating railway cars. Historic components of the car were preserved while providing a new modern roof structure that incorporates the car and provides shelter for the user. This concept was used in creating imagery for Phase 1B, which could potentially be the "food court" or "outdoor courtyard."

Image to the Right: Another view of the dining area with the railway car abutting the raised boardwalk. This particular location is complete with outdoor seating and a full bar, all made possible by the roof structure overhead.





Precedent Studies: Precedent Studies: Exploring previous examples of converted railway train cars was an important aspect of this project. The design team was able to garner different examples from across the United States. These all began to inform the team with styles, architectural language, and types of projects that could be successful in Cheyenne, and ultimately led to the conceptual images that were created. One case study that was reviewed was in San Antonio, Texas. It is a group of businesses in converted train cars. They have restaurants, spas, and a hair salon. They are all interconnected with a boardwalk which creates a plaza/seating area in front. This creates a nice open space separate from parking so you feel like you are in a park instead of in a strip mall.

Zoning: The Zoning District in the area is Central Business District (CBD) and Community Business (CB). This zoning allows for most business types which allows for more flexibility for leasing the cars for businesses.



Phase 1A (Faux Track & Train Placement): Nearest to the Depot and the Museum, the railcars would be abated to provide the visitor with a historic perspective of the trains that were active through Cheyenne. The goal is to include construction of a linear faux elevated rail track and supporting infrastructure (curb and gutter, pedestrian path, drainage, etc.), Placement and refurbishment of three (3) rail cars identified in the \$733,000 EDA grant is also included. This phase would also include installation of decorative boundary fencing between the rail yard and City owned property. Those cars include City of Cheyenne Engine No. 1242, Ol' Sadie (Circa 1890); UPRR Car No. FTSX812, 40' x 9', Caboose (Circa 1959), UPRR Car No. SP7077, 81' x 10', Pullman Business Car (Circa 1930). The track installation would require construction of approximately 135' to place Engine No. 1242 and Caboose No. FSX812. This area could eventually house Engine No. 4004, Big Boy (Circa 1944) when the opportunity/ funding becomes available. An additional 85' of track will need to be placed for UPRR Car No. SP7077 near Pioneer between the Gunslinger and Livery areas.



Decorative Bollards similar in style to street lights



*Pavement Changes for Traffic Calming
Photo Credit: Richard Collier,
Wyoming Department of State
Parks and Cultural Resources*

Phase 1B (East Parking Lot and Platforms): The addition of the rail car display and viewing platform, will require reworking the parking lot adjacent to the Depot. This phase would also include improvements to 15th Street like street lighting, and new fence along the rail yard. These new improvements are intended to enhance the aesthetics and security/safety along 15th Street. The biggest change in this area will be closing off 15th Street between Capitol and Carey Avenue. Currently the street closure is being proposed as a seasonal closure. As a seasonal closure, additional safety measures will be required for the protection of pedestrians. Removable or drop-down bollards would provide the most flexibility for the space. Another way to distinguish the change of use is to have a different road surfacing than the traditional asphalt or concrete. Changing the road surfacing in studies has been shown to provide traffic slowing. It forces drivers to become more aware of their surroundings. Currently the termination of Capitol at the Depot plaza has a different surface treatment, and it would continue to this new street closure area.

Phase 1C (West Parking Lot): The goal is to lease or potentially purchase the site near Bent Avenue to provide a paved parking lot. This would be the West Parking Lot. This phase would include grading, drainage, pavement, landscaping buffer, pedestrian path, greenway extension, and decorative pedestrian, train, vehicle and street lighting along 15th Street between Bent Avenue and O'Neill Avenue.

Phase 1D (Plaza): Further down, a plaza would be created that would house additional train cars that could be leased for businesses. A boardwalk would wind around and between to access the train cars. Areas of shade and wind blocks would be scattered throughout the plaza. New infrastructure would be provided for business use like a central grease interceptor and adequate sewer and water lines. The plaza is integrated with Gunslingers and the plan would also include a central restroom building. The plaza is a multi-use destination for community engagement and socialization. It activates the area for people to gather and interact with the space. While parking lots are necessary, creating buffer zones with landscaping, fencing, and pathways create a more pleasant environment to gather and traverse. The plan would be to create a flexible area around the plaza that could be used for overflow parking during big events but as a park like setting for eating and relaxing on other days. During this phase, 15th Street would become one-way and diagonal parking would be implemented or the street section would become two-way with a elevated greenway.

Phase 1E: Additional railcars to be added for additional leasable area. These could be community spaces, rental lodging, or a whisky tasting room (with the Distillery across the street). The possibilities are endless. These areas create a safety buffer and an aesthetic buffer between the street, pathways, and parking. Infrastructure would be extended to this area including additional lighting.



Concept Image of the Pedestrian Overpass Bridge Connecting to the Roundhouse

Phase 2: The Depot addition was designed with the bridge connection to the Roundhouse. This will be a continuation of that long term goal. Drawing from historic railway bridges and pedestrian overpasses around Wyoming, the architecture would bring together the historic and new. This phase would provide a pedestrian overpass and viewing platform from the Depot to the Roundhouse. With the wild Wyoming weather, an enclosed viewing area would be ideal for providing long term viewing. The idea would be to expose the structure and provide glass for viewing and benches for sitting. This overpass provides an opportunity for the public to safely view an active rail yard. The eventual goal would be a second story entry into the Roundhouse to view the trains that are stored in the facility.

Roundhouse - Future Phase 3

Roundhouse History: The Union Pacific roundhouse was constructed in 1931. The roundhouse was constructed for the maintenance and storage of steam locomotives. The roundhouse is located in the Union Pacific rail yard in Cheyenne near the turntable and machine shop. The roundhouse, turntable and machine shop were added to the National Historic Register in 1992. Union Pacific in conjunction with the National Park Service, and the Wyoming State Historic Preservation Office restored the roundhouse to near original condition.



Two Union Pacific SD40-2s Outside the Remaining Section of the Cheyenne Roundhouse - August, 1990

Photo by mlrail on flickr

The roundhouse is a massive wedge-shaped brick building with a three-tiered roof. The brick walls are supported by 12" steel columns encased in concrete. The roof structure is supported by a system of 12"x12" wooden timbers. The roof itself is constructed of 4"x14" wooden joists covered with wood sheathing. During rehabilitation the roof was covered with 3" insulation and ethylene polymer diene monomer (EPDM) roofing. It was originally a 48 stall roundhouse and only has seven stalls remaining. Over the years, different sections of the roundhouse were demolished.

The 126-foot diameter continuous span type turntable and control house were constructed in 1941 and replaced a smaller turntable dating from 1911. The turntable has a rail-embedded circular concrete apron and is considered an integral component of the roundhouse facility. The Union Pacific roundhouse, turntable, and machine shop are historically significant due to their unique engineering attributes designed for a single function, the maintenance and storage of steam locomotives. The structures are also significant due to their relationship to the continued development of the first transcontinental railroad and its effect on the formation and growth of Cheyenne and the Territory and State of Wyoming. (Source: National Register of Historic Places Registration Form Union Pacific Roundhouse, Turntable, and Machine Shop).

Precedent Studies: The first example explored as a precedent study is in Wyoming. The Evanston Historic Roundhouse & Railyards was originally constructed between 1912-1914 by Union Pacific Railroad and features one of the last intact roundhouses on the UPRR line. In 2009, the city of Evanston was able to refurbish the first of four sections of the Roundhouse as a public facility. The bi-level structure includes a spacious gallery, an upper level lounge, three small boardrooms and/or one large classroom. It also contains an elevator and two kitchenettes. Roundhouse Section One can easily accommodate up to 1,300 conference attendees and exhibitors. With a state-of-the-art audio/visual system, stages and podiums, banquet tables and chairs, the facility is fully equipped to host events of nearly any size. The community frequently uses the space and is an example of a highly successful renovation.

Another precedent study is the California State Railroad Museum in Sacramento, California. It has a large gathering space in the roundhouse that seats 500 guests and is surrounded by restored locomotives and cars. They also have a caboose for public rental. The large open spaces originally designed for trains are ideal for large gatherings or exhibits.



Photo Credit: Myers Anderson Architects



Photo Credit: Myers Anderson Architects

Before and After Images of the Evanston Roundhouse - Example of a highly successful Roundhouse Renovation for Public Use



Interior Photo of Evanston Roundhouse

Photo Credit: Myers Anderson Architects

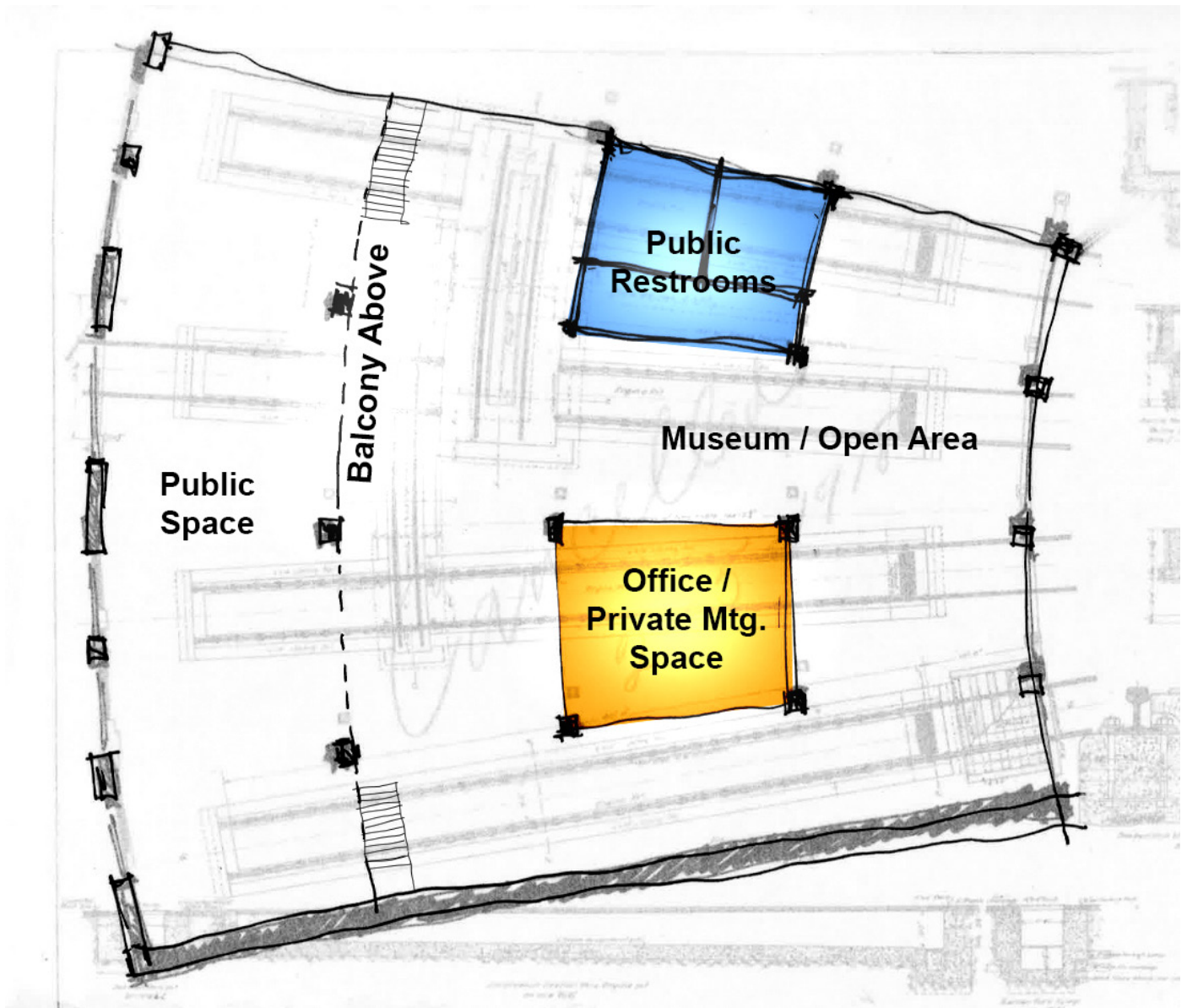


Image Above: This image is a quick concept sketch of a basic floor plan renovation that could take place within the Cheyenne Roundhouse. By utilizing the open areas, multiple public spaces, viewing platforms, museum-like displays, and other appropriate spaces could be created. While any renovation of the Roundhouse is a future phase, ideas are being generated now as to how the building could be better utilized.

Photo to the right: This group of railway cars was renovated, complete with a raised boardwalk, to become a series of leasable retail spaces. These types of ideas have been examined for the 15th street project, although preserving the historical integrity of the train cars is of utmost importance.



Photo to the right: This is a continuation of the photograph above. The boardwalk ties the railway cars together, providing a unified experience. This has been a main concept for all phases of the 15th street improvement project.



Photo to the right: This railway car sits by itself, and has received a full renovation, complete with a private deck/entrance. Although not necessarily appropriate for the 15th street project, the idea of providing more private spaces for patrons was explored.





Photo to the left: This railway car was renovated into a diner restaurant, with an elevated boardwalk providing patrons easy access. The car itself maintains its historical aesthetic, lending to the experience.



Photo to the left: This railway car looks as though it is still in operation. The faux track, lights, and fencing all lend to the appearance. Having outdoor tables nearby gives the user an authentic close up view of the train; another idea that the 15th street improvements hope to capitalize on.



Photo to the left: Another idea, quite different than restaurant/dining, is that of a private dwelling. This railway car received a complete interior renovation, which can likely be rented out to the public for overnight usage. This particular idea could be realized in the phase 2 portion of the 15th street project.



Overall 3D concept rendering looking towards the existing depot with the pedestrian bridge to the Roundhouse shown in the background. The front of the image depicts a possible layout for the rehabilitated steam engine with viewing boardwalk.





This 3D concept image depicts the second phase of the project. This is a courtyard surrounded by train engines and faux track, complete with a wrapping boardwalk and covered portions. The train cars could be small food vendors, creating a food-court like atmosphere with an active plaza.





Another 3D concept view of the “food court”, depicting the boardwalk, train cars, and covered deck.





Another 3D concept depicting the second phase of the project. This is a slightly different approach, which does not utilize any covered structure, and opens the courtyard more to the 15th street.





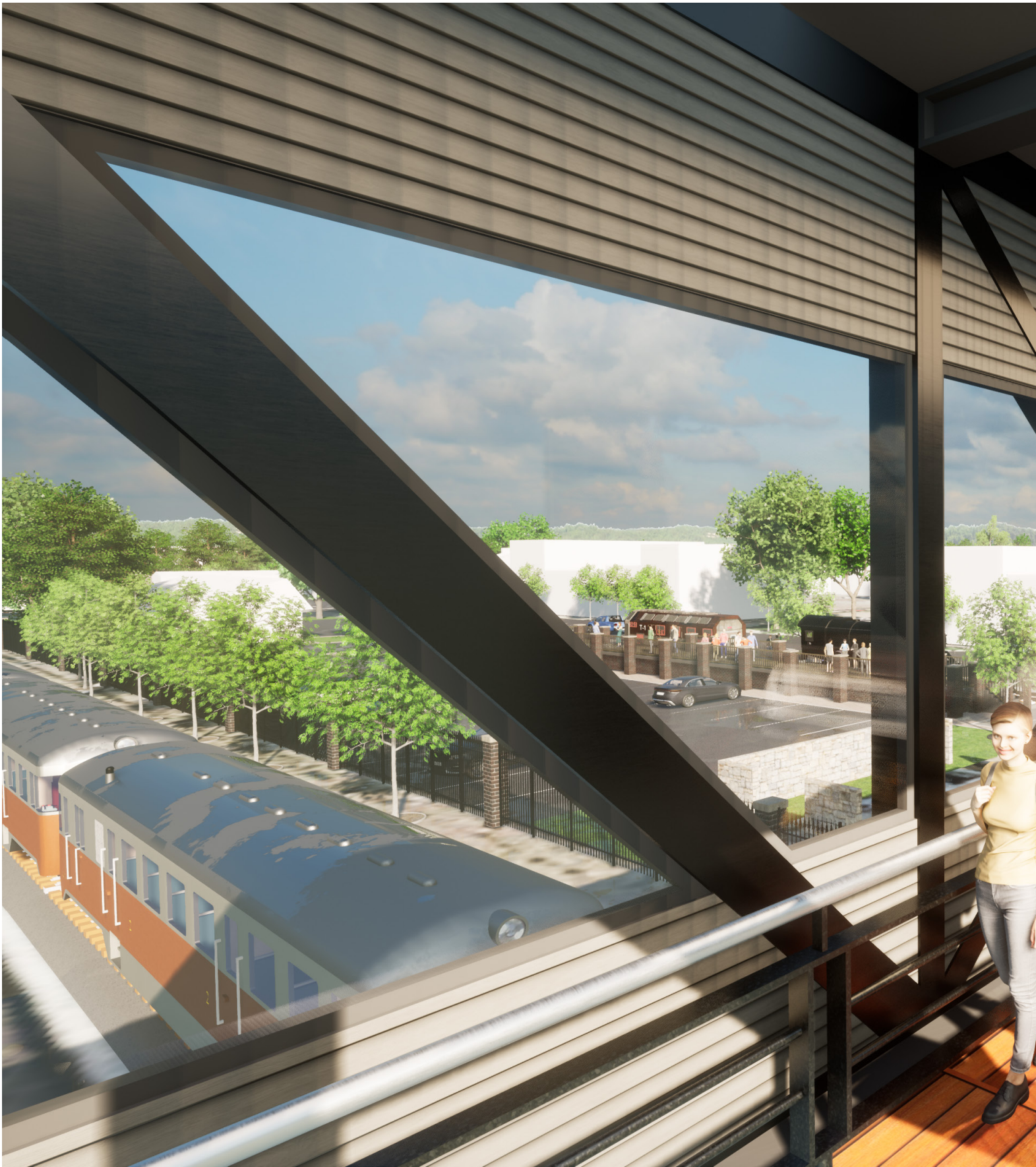
3D image showing the alternate concept: Opening the courtyard to 15th Street.





Concept Image of the pedestrian bridge that connects to the existing Roundhouse.





Interior 3D Concept of the pedestrian overpass bridge.

