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I. Introduction

Scope of Project and Project Goals

The boundary area for this study includes the downtown area from the State Fairgrounds entry on Yellowstone on the west, Fifth Street on the east, Cedar Street on the north and Oak Street on the south. The study area includes approximately 12 square blocks in the downtown, and the area on both sides of Yellowstone to the Fairgrounds entry at Walnut Street.

CEPI and Civitas, the consultant team, worked closely with city staff to develop the Downtown Development Steering Committee comprised of downtown business owners, elected representatives and interested community members. The Steering Committee was responsible for directing the project team and providing a vision for Downtown Douglas. A total of five public meetings were held from the original scoping meeting to the final project presentation. The Downtown Development Steering Committee was the foundation of the study.

The consultant team evaluated the existing infrastructure and held a day-long work sessions to meet individually with Steering Committee members and other community representatives to understand and evaluate Downtown Douglas. Following the education and evaluation process the consultant team began preparing streetscape and landscape design alternatives. Once several alternatives were developed the consultant team met again with the Steering Committee and the alternatives were evaluated. Based upon the input at this meeting the preferred alternatives were developed for Downtown Douglas as presented herein. In addition to streetscape and landscape improvements the consultant team evaluated potential sites for downtown housing opportunities.

Funding for municipal roadway projects in the State of Wyoming is very difficult unless the Wyoming Department of Transportation (WYDOT) is directly involved with the project. There are very few loan or grant programs available for municipal roadway projects so funding usually must be diverted from within municipal budgets for roadway improvements. WYDOT is scheduled to reconstruct Yellowstone, Center Street and 4th Street in the next five to ten years. However, it is not anticipated that the City of Douglas will have available funding to reconstruct or enhance the other municipal roadways in the downtown area. For this reason, funding and phasing plans were not developed as part of this study.

WYDOT has an active program for streetscape and landscape improvements on municipal roadway projects; they will fund, to a significant level, streetscape improvements when the roadways are reconstructed in Douglas. Cost estimates will be developed by WYDOT and their landscape architecture consultant when these projects are completed.
Process

The Downtown Douglas Development Plan was conducted over a period of six months from January 2005 to June 2005. Regular monthly meetings were held with City staff and with the public to generate ideas and review concepts and plans for the future of Downtown Douglas. Meeting summaries are included in the Appendix of this document.

Meeting No. 1: January 15, 2005

This meeting was an orientation meeting about the project where the consultant team learned about some of the key issues in the downtown area and heard about possible ideas for the future of downtown that could be incorporated in the development plan.

Meeting No. 2: February 15, 2005

At the second public meeting, the consultant team presented some initial findings regarding the downtown area, and gave an overview of what some of the possible design elements of the future streetscape may be.

Meeting No. 3: March 15, 2005

The third public meeting included a review of possible streetscape alternatives for the downtown area and particularly Yellowstone and Center Streets. After a brief presentation, the public was asked to review the plans and write comments on their likes and dislikes of the alternatives that were shown.

Meeting No. 4: April 12, 2005

The fourth public meeting reviewed the comments and alternatives and made the selection for the preferred streetscape design that will be incorporated into the Development Plan.

Meeting No. 5: June, 2005

This meeting was the final presentation to the city and community about the proposed Development Plan for Downtown Douglas.

Vision for Downtown Douglas

As part of the overall design process, a vision statement was prepared to express the future desires of what Downtown Douglas should become in the future. The following statement reflects the expectations and vision from the community.

Downtown Douglas shall be the historic heart of the community and a quality oriented destination for all residents, businesses, consumers and tourists.

Downtown shall be built upon the independent spirit of Douglas working together to create a pedestrian friendly shopping and business experience that is committed to serving the community and providing a location that serves as Douglas’ ‘front porch’.
II. Analysis Information

Downtown Douglas has many components necessary to strengthen the downtown area. Downtown is the civic core to the City and includes the Converse County offices, City of Douglas offices, the United States Post Office, Converse County Library, CANDO, Railroad Interpretive Museum, and the hospital. All these civic functions add to the vibrancy of downtown and create a stable employment base for the area. Downtown also includes a number of historic buildings and a mostly intact building stock that creates a good street presence and the potential for active storefronts and businesses. The majority of the historic buildings have not been remodeled, but they have potential to add to the character of downtown when they are renovated.

Downtown also includes a number of vital retail and business establishments including banks, a grocery store, small restaurants, the Moose Lodge, and the LaBonte. All these uses add to the activity in the area and need to be retained as much as possible.

The main civic space in downtown is Jackalope Square. This small square includes a restroom facility, picnic shelters, a small plaza with landscape, parking, and of course the famous jackalope monument. The public parking lot at the southeast corner of Walnut and Second also serves as a public gathering space for special events, such as farmer’s markets, flea markets, and city-wide events.

To the west of downtown across the railroad tracks, the Railroad Interpretive Museum and Chamber of Commerce are in the refurbished railroad depot and include interpretive information and a number of railcars and steam locomotives. This facility also serves as the visitor information stop for travelers. Just west of the Railroad Interpretive Museum is the Wyoming State Fairgrounds with a pedestrian entry on Center and the main vehicular entry on Walnut Street.

On the north and south sides of the downtown core are residential neighborhoods with tree-lined streets and well-kept houses.

Street Hierarchy

The downtown Douglas area is characterized by a north/south street grid with alleys and attached sidewalks. The street right of ways vary from 80’ to 100’, with the ‘main’ traffic carrying street being Center Street. Second, Third and Fourth Streets are the primary commerce and retail streets in the area. The east/west streets of Cedar, Walnut, Oak, and Elm act as secondary commercial streets.

Within the next few years, WYDOT is expected to reconstruct Yellowstone, Center Street and Fourth Streets as part of an overall highway improvement project in Douglas. Center Street will remain a 100’ ROW but the existing medians are slated to be removed. This highway reconstruction project offers Douglas a great opportunity to widen the walks on each side of the street and to add pedestrian improvements such as trees, benches and lighting. Because of this impending project, Yellowstone and Center are a focus of the design effort.
Downtown Building Uses
The accompanying map shows the different types of building uses in the downtown area. These uses contain civic, historic buildings, and public space. The majority of the other downtown buildings contain commercial retail uses.

Possible Downtown Gateways
There are a number of potential downtown gateway locations on Yellowstone, Center, and Fourth Streets that could be used as a focal point to inform visitors that they are entering a special district. From the west, the main entry to the fairgrounds could be highlighted, or the Railroad Interpretive Museum at Brownfield Street. The downtown core really starts at the railroad crossing, with the potential to highlight this area with new landscape, banners, and decorative lighting. The downtown entry from the south is at Elm Street. The intersection of Center and Fourth Streets could also be highlighted at this important crossing point.

Pedestrian Connections
For the most part, there are good pedestrian connections throughout the study area. Most of the city streets have attached sidewalks that range from 8’ wide to 12’ wide. The sidewalks along Center Street are 9.5’ wide, and would benefit from having a wider walk (12’) when Center Street is reconstructed by WYDOT. The weakest pedestrian connection in the downtown area is between downtown and the Railroad Interpretive Museum and the Fairgrounds. This connection has a minimal width walk on the south side and virtually no walk on the north side. The area around the railroad crossing is also a difficult area for pedestrians because of the lack of definition of the walk area.
Existing Conditions and Cross Sections
The following street cross sections show the existing cross sections for the major streets in the downtown area and the proposed WYDOT cross section for Yellowstone and Center Street when it is reconstructed.

Existing Second Street Section

Preferred Yellowstone Section
Note: cross section may vary due to limited ROW in some areas.

Existing Third Street Section
The WYDOT preferred cross section shows five (5) 12' wide lanes with eight foot wide parking lanes. This section keeps the walk width at the existing 9.5'. The alternative to this section would reduce three of the lanes to 11' wide and reduce the parking lanes to 7' wide. This would provide 12' wide walks along Center Street and is the preferred alternative from the City point of view.
III. Alternatives

Downtown Wide Alternatives
Two alternatives were shown for the downtown wide streetscape improvements.

Alternative 1 shows a regular streetscape pattern for street trees and amenities throughout the downtown. The street tree spacing is approximately 40’ O.C. along Center Street, and a 50’ spacing along Yellowstone Street.

Alternative 2 (shown on page 9) shows a regular street tree spacing along Center Street using a 50’ to 60’ tree spacing, and a more informal street tree pattern along Yellowstone, similar to the treatment at the Rail Interpretive Museum.

For both alternatives, it may require the City and WYDOT to have a pedestrian and planting easement along Yellowstone to accomplish these improvements and to provide a wider walk surface and better connection to the Fairgrounds.
Center Street Options

Three options were presented for future improvements to Center Street. These improvements would be implemented when WYDOT rebuilds Center Street.

Elements common to all the alternatives

There are a number of streetscape elements that are common to all of the alternatives.

- The first common element is that there will be neck downs or bulb outs at each intersection. These neck downs reduce the width of the street from curb to curb by moving the curb in towards the center of the street equal to the width of the parking spaces on each side. This reduces the crossing width by approximately 16' on Center Street and up to 40' on Second and Third Streets where there is diagonal parking.

- The street cross section includes three (3) 11' lanes and two (2) 12' lanes. The parking lanes are 7' wide.
- The proposed walk width is 12'.
- A mid block pedestrian crossing is proposed between Second and Third, and Third and Fourth Streets. The configuration of this crossing varies slightly between the alternatives.
- It is anticipated that the alleys at Center Street will be right-in/right-out only. This turning configuration allows for the mid block crossings.
Option A
The first alternative shows a regular street tree pattern of approximately 60’ O.C. and pedestrian lights spaced approximately 60’ O.C. Trees are shown in 4’ x 8’ rectangular tree grates. Patterned concrete is shown in a 4’ wide band at the back of the curb that delineates the amenity zone. This option shows the potential for planters within the bulb out area at each intersection for small trees, shrubs and groundcovers.
Option B

The second option shows a regular street tree spacing of 40' O.C. and pedestrian lights spaced approximately 80' O.C. Trees are shown in 4' x 12' rectangular tree grates to allow for better growing conditions for the trees. A large block of patterned concrete paving is shown at each tree, at each bulb out area, and at the street cross walks. This special paving is also carried out into the center lane where feasible. Benches and trash receptacles are shown at each bulb out and along the frontage of the street. Small planters are also shown along the street frontage.
Option C

The third option shows a regular street tree spacing of 40' O.C., and pedestrian lights spaced at approximately 80' O.C. The street trees are intended to be upright or columnar trees to fit within the narrow walk area. Trees are shown in 4' square tree grates. A patterned concrete band approximately 18" wide is directly behind the curb and also acts as an edge to the cross walks in the streets. Benches and low planters are shown at the bulb out areas at the intersections. Benches and trash receptacles are also shown along the street frontage.
Streetscape and Furnishing Alternatives

Three different streetscape and furnishing alternatives were developed for review by Douglas.

Option A uses a globe-type historic ornamental light and street furnishings that use similar shapes.

Option B uses an acorn-type historic ornamental light, similar to the lights already being used in Douglas.

Option C uses an arched light that mimics some of the local railroad historic.

All options use high quality, durable site furnishings and can be painted to match any color that the city selects for the downtown area.
IV. Recommendations

The City of Douglas reviewed the alternatives and options over a period of one month from March to April of 2005. After this review, the community met on April 12 to select the best components of each option to become the recommended plan to the Downtown Douglas Development Plan. The following recommendations represent the desires of the community as to the future design direction for the Douglas downtown. These recommended improvements are intended to be implemented over time and to be used by the City in future negotiations with WYDOT for improvements to Yellowstone, Center and Fourth Streets when the State Highway is rebuilt.

Preferred Streetscape Plan

The recommended streetscape plan identifies a number of elements that will help to give the downtown area a unique character of its own, and help to give the City a roadmap for future streetscape improvements.

Yellowstone from Fairgrounds Entry to Railroad Tracks

This area will be the major pedestrian connection between downtown and the fairgrounds. Because of the desire to increase pedestrian traffic, it is recommended that the pedestrian walks and streetscape be upgraded to provide an attractive and safe pedestrian environment. The key to this area is to allow for a wider walk width between the railroad tracks and the Rail Interpretive Museum by adding a wider walk (at least 12' wide) to both sides of the street. Where possible, a detached walk should be provided with a landscape area at least 6' wide between the curb and the walk. This landscape area will allow street trees to be placed at a regular spacing approximately 50' O.C. Pedestrian lights should be placed every 100' in this area. The area between the walk and the curb should be landscaped with drought tolerant plants, similar to the plantings at the Rail Interpretive Museum.

The pedestrian connection between Yellowstone and the primary pedestrian entry to the fairgrounds at Walnut Street should also be improved, adding new plantings, a better walk connection, pedestrian lighting, and special paving accents to help to better delineate the

Recommended Streetscape Plan
pedestrian access routes. Downtown signage showing key points of interest, restaurants, civic buildings, and downtown destinations should be placed at this location to help to draw State Fair visitors into downtown.

The existing drive locations on the north side of Yellowstone need to be consolidated to allow for this landscape treatment. WYDOT and the city need to negotiate with each property owner in this area to reduce the number of drive cuts where possible.

**Railroad Crossing**
Because of the potential additional pedestrian traffic between the Fairgrounds and Downtown, the pedestrian crossing at the railroad tracks needs to be improved. The crossing should conform the railroad regulations, and should have a clearly defined pedestrian path on both sides of the street.

**Center Street, Railroad Tracks to Fourth Street**
Center Street is the main vehicular street through downtown Douglas. The improvements for Center Street should reinforce the overall downtown character and reflect the strong history of Douglas. The new alignment of Center Street should allow for a minimum of 12' wide walks on each side of the street. This wider walk surface will allow for a better pedestrian environment and allow for larger trees, spaces for benches and planters, and space for upgraded walk pavements and pedestrian lighting.

The recommended streetscape pattern for Center Street is to provide for street trees at approximately 60' O.C. spacing on each side of the street. The trees should be placed in 4' x 8' rectangular tree grates. A 4' wide amenity strip shall be placed behind the curb and be paved with patterned concrete in a color that contrasts with the adjacent gray concrete. The pattern for this area should be subtle either in a brick or simulated stone pattern. Pedestrian lights shall be spaced evenly between each tree and adjacent the intersections. Benches, planters and trash receptacles should be placed at four locations on each block face.

The street crossings shall incorporate neck downs at each intersection and the crosswalks shall be colored patterned concrete to match the colored concrete in the amenity strip. Mid block crossings shall be provided between Second and Third, and Third and Fourth Streets and shall also have colored concrete in the crosswalk.

At each intersection, a neck down will decrease the distance a pedestrian has to cross the street and provide additional amenity space. At this amenity space, low planters shall be built to provide space for small plantings and low ornamental trees, and benches and trash receptacles shall be provided. The paving at these areas is a good location to add some interesting pavement art that reflects the character of Douglas. This art could be imprinted into the concrete paving and could include images such as the Jackalope, railroad themes, western themes, etc.
Fourth Street
For the short term, Fourth Street will be a three lane street with parallel parking in each side. The sidewalks should remain detached along Fourth Street and be at least 6' wide. Ornamental pedestrian lights should be placed approximately 80' to 100' O.C.

Parking Lot Improvements
There are a number of recommendations that can be incorporated into the existing parking lots in the downtown area to make them more attractive.

The parking lot between Second Street and the Railroad Tracks on the north side of Center Street is a prime candidate for improvements. This parking lot is the first space that visitors see when coming into downtown from the west. The following improvements are recommended:

- **Edge Improvements**
  The parking lot edge adjacent to the railroad tracks should be improved by adding a low metal railing or brick wall at least 36" in height along with a low landscape hedge to screen the fronts of cars from oncoming traffic down Yellowstone. Where feasible, shade or ornamental trees should be added to this area.

- **Parking Lot Improvements**
  Adding parking lot islands with low plantings and shade trees would be a good improvement to this parking lot. The islands should be placed at the ends of each parking lane and approximately every 150' (15 spaces) in the parking lot. Parking lot lighting should be added to each island.

- **Trash Dumpster Screening**
  The trash dumpsters that line the alley should have a sturdy screen enclosure built around them that encloses the dumpster on three sides (N, S, W). This enclosure should be made of either large dimension lumber or metal to withstand the abuse that these elements often receive. The screen should be at least 6' in height and be painted to match other improvements in the downtown area.

- **Railroad ROW Landscape**
  The railroad controls the area directly adjacent to Center Street at all four corners of the rail/street intersection. The City should work with the railroad to include low landscape or turf in these areas to improve the visual character of this important area.

- **Alley Upgrades**
  Because many businesses on Second Street use this parking lot, upgrades to paving and signage should be made to make for a safer pedestrian environment. Building upgrades and better building signage could also be added.

Potential Downtown Housing Locations
There are a number of locations to provide housing in the downtown area. The most obvious locations include the second floors above retail and commercial businesses, the parking lot at Walnut and Second Street that is currently owned by the City, and some vacant parcels in the area. While these sites would not drastically increase the amount of people living downtown, they are good opportunities to begin to increase the number of people that can directly support the downtown businesses.
Jackalope Square Improvements

Jackalope Square is downtown’s only green civic space. There is now an opportunity to increase the size of this small park. The City should take advantage of this opportunity and begin to plan for a park expansion that includes the following elements:

- **Additional Land**
  The current opportunity allows the site to be increased by 12,000 SF (4, 25’ lots) to a total site area of 30,000 SF.

- **Bandstand or Gazebo**
  The addition of a small bandstand or gazebo at the southwest corner of the park will provide the opportunity for small performances to occur at the park. The design of the gazebo should reflect the small town character of Douglas and have a historic feel, while providing modern amenities such as lighting and adequate electrical utilities to provide for performances. The gazebo should be elevated above the ground at least 24” to provide for a better presence in the park. The facility will need to be handicap accessible.

- **Lawn Area**
  A larger lawn area that fronts on to the gazebo can allow for people to watch performances, allow for small gatherings or picnics, or allow for display space for farmers markets, flea markets, or city events space. Shade trees and pedestrian walkways should surround this space to create an inviting park-like space for the City.

- **Shelters**
  Additional, larger shelters should be provided in the park to encourage picnics or be used as display space for events. These shelters should have a similar architectural character as the gazebo.

- **Children’s Feature**
  A small play feature or sculpture to climb on should be added to the lawn area at the existing Jackalope Park space next to the restroom facility. This feature could have a historical context that relates to the gazebo and shelters, or it could be a true play structure that would give families another reason to come downtown.

- **Amenities**
  Additional pedestrian amenities such as benches, ornamental lighting, trash receptacles, and a low screen along the alley should be provided. Electrical outlets should be located at each shelter, and a general wayfinding sign should be placed at the corner of Third and Center to allow for visitors to find destinations and shops in the downtown area.
Streetscape Elements

- **Street Trees**
  Street trees along the City streets should be hardy for the Douglas environment and be generally upright in their form. They should not have fruit or berries that drop on the sidewalks, and should be free from thorns or other noxious characteristics. Some possible trees for the streets of Douglas include:
  - Summit Ash
  - Columnar English Oak
  - Greenspire Linden

- **Shade Trees for Parks and Parking Lots**
  - Shademaster Honeylocust
  - Autumn Purple Ash
  - Summit Ash
  - Common Hackberry

- **Ornamental Pedestrian Lights**
  The selected ornamental pedestrian light to be used throughout the downtown area shall match the new lighting at the Rail Interpretive Museum.

- **Benches**
  Douglas has a wonderful Jackalope bench that should remain as the primary bench in the downtown area.

- **Trash Receptacles**
  Trash receptacles for the downtown area should be constructed of a heavy metal or precast concrete and should reflect the historic character of the street.

Infrastructure Recommendations

Utilities Evaluation

As part of the conceptual plan, a utilities evaluation was performed to ensure the utilities were capable of providing long term reliable service for the improvements proposed in the revitalization plan. This section of the report provides the results of the municipal utilities evaluation and presents recommended utility improvements for the study area. The utilities evaluated include the water distribution system, the storm sewer collection system and the sanitary sewer collection system.

Evaluation of Existing Utilities

The existing water, sanitary and storm sewer systems were thoroughly inventoried for the study area, including a review of all of the Town's record drawings. Additionally, several of the manholes in the study area were opened to identify materials of construction, condition, depth and configuration. The condition of the existing systems was thoroughly discussed with the Douglas Public Utilities personnel to identify areas of concern and maintenance problems.

The results of the utilities evaluation for the water, storm sewer and sanitary sewer systems are summarized hereinafter.

Water System Inventory and Evaluation

There are approximately 14,000 feet of water distribution system pipelines in the Downtown area ranging in size from 4-inches to 12-inches in diameter. All of the waterlines in the Downtown area are constructed of either ductile iron (DI), cast iron (CI) or polyvinyl chloride (PVC). All of the water lines are located in the streets. The majority of the original pipelines are still in service, however about 40% of the mains have been replaced in recent years.

The evaluation of the water distribution system was made in part by reviewing WDEQ guidelines for design and construction of water systems. Some of the pertinent guidelines that were used for this evaluation include the following:

- The minimum size of a water main providing fire protection and serving fire hydrants shall be in 6-inches diameter. Any mains smaller than 6-inches shall be justified by hydraulic analysis and future water use.
- Dead-end water mains shall be minimized by looping where dead-end mains occur, they shall be provided with a flushing hydrant or blow off for flushing purposes.
- Fire hydrants shall be located at every intersection. In residential areas, fire hydrant spacing shall be no greater than 400 feet. In business or commercial areas, fire hydrant spacing shall be no greater than 300 feet and no building shall be greater than 150 feet from a hydrant. Valves on water mains shall be located at not more than 500-foot intervals in commercial districts and not more than one block apart, or 800-foot intervals in other districts.
- Water mains, valves, fittings and appurtenances shall be designed and constructed of materials that withstand external corrosive forces from the soil, and internal corrosive forces from the water being conveyed.

A hydraulic model was not developed to evaluate the water distribution system capacity as part of this study. All other information used to evaluate the water system in the Downtown area was provided by the Douglas Public Utilities. The record drawings were reviewed with the Douglas Public Utilities staff and recommendations were provided. Based on the above criteria and recommendations of the staff, the following evaluations were made:

- All of the water mains constructed of cast-iron or ductile iron pipe are old. These
metallic water mains exhibit external corrosion and experience periodic leaks requiring repair. The metallic water mains are not cathodically protected and are not protected with polyethylene wrap.

- Fire hydrant spacing in the Downtown area appears to meet the above guidelines.
- Valve spacing appears to be adequate; however, additional isolation valves would greatly aid with repair work.

**Recommended Improvements**

The proposed water system improvements include replacement of all of the ductile iron pipe (DIP) and cast iron pipe (CIP) water mains within the Downtown study area. Due to the corrosive characteristics of the soils in the Downtown area, the DIP and CIP have experienced deterioration. The Douglas Public Utilities staff has indicated there are several lines in the Downtown area that have experienced periodic leaks. The staff has experienced increasing water line leaks caused by the external corrosion of the iron lines. With the increasing potential for main breaks and the possibility of not being able to shut the main down, the old metallic water mains in the area should be replaced in the immediate future.

**Storm Sewer Collection System Analysis**

The storm sewer collection system was inventoried using existing drawings and a field inventory of the inlets and manholes. The condition of the existing systems was thoroughly discussed with the Douglas Public Utilities personnel to identify areas of concern and maintenance problems.

**Storm Sewer Inventory**

There are approximately 4,000 feet of storm sewer collection pipelines in the Downtown area not including the piping which connects the inlets to the storm sewer main. The storm sewer piping ranges in size from 12-inches to 48-inches diameter. The majority of the storm sewer pipe is constructed of reinforced concrete pipe (RCP); however some of the storm sewer piping near the railroad is constructed of corrugated metal pipe (CMP). Pipe sizes and system configuration were obtained from the Douglas Public Utilities' record drawings.

There are three primary storm sewer collector lines in the study area. Line "A" located in Center
Street begins as an 18-inch collector and extends from Third Street westward to a point west of the railroad tracks where it increases in size to 48-inches in diameter and continues north to the drainage ditch that runs along the railroad tracks. The storm sewer piping for Line "A" is constructed of RCP. The inlets along Center Street are combination type.

Line "B" located in Fourth Street begins at Center Street and runs northward to beyond the Downtown Study Area on Cedar Street. It starts as an 18-inch pipeline and is a 33-inch at Cedar Street. The storm sewer piping for Line "B" is constructed of RCP. The inlets along Fourth Street are combination type.

Line "C" located in Fourth Street begins at Center Street and runs southward beyond the Downtown Study Area on Elm Street. It starts as an 18-inch pipeline and is a 24-inch at Elm Street. The storm sewer piping for Line "C" is constructed of RCP. The inlets along Fourth Street are combination type.

Line "D" is located at the intersection of Second Street and Elm Street and appears to have no outlet. It begins as a 12-inch pipeline to the south. The location of this line is unknown and appears to be plugged with debris. The 12-inch storm line flows from the south inlet to the northeast inlet and terminates at the northwest inlet. The storm sewer piping for Line "D" is constructed of CMP. The inlets are grate type.

Line "E" is located at the intersection of Second Street and Oak Street. The line begins as a 15-inch storm pipe out of the first set of inlets to the next catch basin. From the catch basin to the railroad track is a 33-inch pipe which changes to an 18-inch pipe to the inlet west of the railroad track. The 18-inch storm sewer piping continues northerly to Center Street and connects to the 48-inch RCP piping. The storm sewer piping for Line "E" is constructed of CMP. The inlets are grate type.

Line "F" is located at the intersection of Second Street and Walnut Street. The line begins as a 12-inch storm pipe on the north side of the street and two 10-inch lines on the south side of the street. The two lines connect into a 24-inch RCP storm piping that runs under the existing railroad depot building to the drainage ditch west of the railroad tracks. The storm sewer piping for Line "E" is constructed of CMP. The inlets are grate type.

Storm Sewer Collection System Improvements
From the field inspections and recommendations from the Douglas Public Utilities the proposed improvements for storm sewer mains are summarized below.

- **Line "A"** - Replace all inlets with a larger combination inlet; this type of inlet has greater capacity when clogging conditions exist. The system appears to perform adequately and is able to handle flooding conditions in this area.
- **Line "B"** - Replace all inlets with a larger combination inlet; this type of inlet has greater
capacity when clogging conditions exist. The system appears to perform adequately and is able to handle flooding conditions in this area.

- Line “C” - Replace all inlets with a larger combination inlet; this type of inlet has greater capacity when clogging conditions exist. The system appears to perform adequately and is able to handle flooding conditions in this area.

- Line “D” - Remove and replace existing storm sewer collection system and design a system to get the water out of the area. The existing storm water ponds in this area due to no outlet. The existing pavement in the area is experiencing alligator cracking because of the settling of the water in this area.

- Line “E” - Remove and replace the existing storm sewer collection system. The existing storm system experiences flooding conditions and has potential to damage businesses in this area. Like Line “D” the grades in this area are difficult with the railroad tracks to the west. A design solution could be difficult to correct the problem.

- Line “F” - Remove and replace existing storm sewer collection system. The existing storm system experiences flooding conditions and has potential to damage businesses in this area. Like Lines “D” and “E” the grades in this area are difficult with the railroad depot building and the railroad tracks to the west. A design solution could be difficult to correct the problem.

Sanitary Sewer Collection System Analysis

The inventory results for the sanitary sewer collection system are provided below. The system was thoroughly inventoried using existing drawings and a field inventory of the manholes. The condition of the existing systems was thoroughly discussed with the Douglas Public Utilities’ personnel to identify areas of concern and maintenance problems.

Sanitary Sewer Inventory

There are approximately 12,000 feet of sanitary sewer collection pipelines in the Downtown area. The vast majority of the sanitary sewer collection lines are located in the alleys. The sanitary sewers range in size from 6-inches to 10-inches in diameter. The majority of the sanitary sewer mains were constructed when the downtown and subdivisions were developed and are constructed of vitrified clay pipe (VCP). The majority of the manholes in the system are constructed of brick. The pipe sizes and configuration were obtained from the Douglas Public Utilities record drawings. The Douglas Public Utilities staff has video inspected the majority of the sewer lines in the Downtown area. Evaluation of the sanitary sewer system was made in part based upon review of WDEQ guidelines for design and construction of sanitary sewer collection system. Some of the pertinent WDEQ guidelines that were used for this evaluation are:

- Sewers shall be 8-inch diameter or larger; 6-inch sewers may be used in cul-de-sacs.
- Manholes shall be located at all changes in pipe size, vertical or horizontal alignment, pipe intersections, and the ends of lines. Maximum spacing is 400 feet.
- Design of the sewer system should be based upon peak flows for the area being served. The carrying capacity of the system may be based upon hydraulic modeling.

There are generally sewer collectors running through the study area. The four southerly flowing sewers are located in the alleys between the railroad and Second Street (6 and 10-inch), Second Street and Third Street (6-inch and 8-inch), Third Street and Fourth Street (6-inch) and Fourth Street and Sixth Street (6 and 8-inch). The four sewers connect into an 8-inch and 10-inch sewer main located in Elm Street, which carries the wastewater westerly towards the railroad tracks.

Sanitary Sewer Collection System Improvements

The majority of the sewer lines in the study area are constructed with vitrified clay piping. The Douglas Public Utilities staff has experienced tree roots growing in the sanitary sewer pipeline at various locations within the Downtown study area. The vitrified clay sewer piping has deteriorated and cracked over time, allowing tree roots to enter the pipeline and cause clogging problems. A large portion of the pipelines within the Downtown area are 6-inches in diameter and do not comply with DEQ standards. In addition to the upsizing and reconfiguration recommendations, it is anticipated that all of the existing VCP sewers and the brick manholes will ultimately need to be replaced due to structural cracking or failures, and the age and properties of the material.

Evaluation of Streets and Sidewalks
There are approximately 18,000 feet of paved streets in the downtown study area. The most heavily traveled streets are Center Street and 4th Street, both of which are under the jurisdiction of the Wyoming Department of Transportation (WYDOT). All the streets are constructed of asphaltic pavement.

**Pavement Inventory**
The method used to evaluate the streets and sidewalks was a visual inspection made in the field. The criteria used for inspecting the pavement are summarized as follows:

- Percent of Raveling
- Percent of roadway with random cracking
- Percent of roadway with patchwork
- Percent of roadway with rutting
- Percent of roadway with deformed cross section
- Percent of roadway with alligator cracking
- Percent of roadway with potholes
- Overall ride quality of roadway

Utilizing the above criteria, the roadways in the study area were divided into three separate classifications. These classifications are:

- **Good Condition** - roadway needs little or no work, shows few or no failures in pavement, and no apparent subgrade failures.
- **Fair Condition** - roadway needs surface improvements, exhibits significant rutting and a few significant pavement or subbase failures.
- **Poor Condition** - roadway needs replacement, exhibits pavement and subgrade failures, major cracking and poor ride quality.

The inventory reports for the pavement are provided in an appendix to this study.

**Concrete Inventory**
Criteria used for evaluating the concrete sidewalk, curbs and gutters, and valley gutters are summarized as follows:

- Crack or cracks larger than hairline
- Adjoining edges with differing vertical alignment (>1/4-inch)
- Any segment with five or more holes in it (>1/2-inch diameter)
- Cracked, broken or missing pieces that interfere with traveling public
- Depression or grade problems which trap more than 1/4-inch of water
- Cross slopes greater than two percent
- Any segment that interferes with the grade of the sidewalk
- More than five percent spauling
- Any segment with curb stops, valve boxes or manholes protruding 1/4-inch or more
- Stumps, stones or roots protruding
- Curb cuts which do not access property
- Handicap accessibility at all intersections

The concrete was evaluated on general conditions of the curb and gutter and the walkway. Using the criteria above, the percent of failure was used to evaluate the general condition of the concrete.

The inventory reports for the concrete are provided in an appendix to this study.
Cost Estimates
The following cost estimates reflect possible improvements for both Jackalope Square and the Railroad Parking Lot. The costs are based on the diagrams shown on pages 16 (Parking Lot) and 17 (Jackalope Square) and are intended for use as a budgetary tool by the City. Actual design of each space may vary depending on the funding, timing and what improvements the City decides are needed at each site.

Possible Funding Sources
One possible funding source for the Jackalope Square project would be Transportation Enhancement Activities Local (TEAL) grants. These grants are funded through the Intermodal Development Act, administered by the Wyoming Department of Transportation (WYDOT). A wide variety of projects qualify under this program including acquisition of scenic easements or historic sites, visitor center facilities, landscaping, interpretation, foot trails and bicycle trails are some of the types. Information regarding the program can be obtained from the State of Wyoming Teal Advisory Committee.

Jackalope Square Improvements

<table>
<thead>
<tr>
<th>Item</th>
<th>Item Description</th>
<th>Quantity</th>
<th>Unit</th>
<th>Unit Cost</th>
<th>Total</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Demo Asphalt Parking Lot</td>
<td>13,200 SF</td>
<td>$1.00</td>
<td>$13,200</td>
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<td>Site Preparation</td>
<td>13,200 SF</td>
<td>$1.00</td>
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<tr>
<td>3</td>
<td>Misc. Drainage Improvements</td>
<td>1 LS</td>
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<td>4</td>
<td>Concrete Walks</td>
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<tr>
<td>5</td>
<td>Bandstand/Gazebo</td>
<td>500 SF</td>
<td>$125.00</td>
<td>$62,500</td>
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<tr>
<td>6</td>
<td>Picnic Shelters (2) @ 560 SF Ea.</td>
<td>1120 SF</td>
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<tr>
<td>7</td>
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<td>180 LF</td>
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<tr>
<td>8</td>
<td>Ornamental Pedestrian Lights</td>
<td>8 EA</td>
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<tr>
<td>9</td>
<td>Benches</td>
<td>8 EA</td>
<td>$6.00</td>
<td>$48.00</td>
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<tr>
<td>10</td>
<td>Trash Receptacles</td>
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<td>11</td>
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<tr>
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<td>Evergreen Trees</td>
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<td>14</td>
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<td>15</td>
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<td>16</td>
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<td>17</td>
<td>Electrical Service to shelters and Bandstand</td>
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Subtotal | $290,025
Contingency (20%) | $58,005
Design, Bidding and Construction Admin. (15%) | $43,520

Total Jackalope Square Improvements | $400,235

Railroad Parking Lot

<table>
<thead>
<tr>
<th>Item</th>
<th>Item Description</th>
<th>Quantity</th>
<th>Unit</th>
<th>Unit Cost</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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<tr>
<td>3</td>
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<tr>
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<tr>
<td>8</td>
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<tr>
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<td>Mulch at Shrub Beds</td>
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</table>

Subtotal | $269,118.25
Contingency (20%) | $53,823.65
Design, Bidding and Construction Admin. (15%) | $48,441.29

Total Parking Lot Improvements | $371,383.19
Acknowledgements

City Staff
Bobbe Fitzhugh, City Administrator
Erin Alspach, CANDO
Mike Roy, City Planning
Sherry Mullinnix, Mayor

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Tom Brauer
Rob Bennett

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Denver, CO 80204
303-571-0053
Eric J. Anderson
Jackalope Park
PROPOSED RECONSTRUCTION
Douglas, Wyoming
LEGAL DESCRIPTION:
LOTS 25 THROUGH 34, INCLUSIVE,
BLOCK 18, TOWN OF DOUGLAS

Jackalope Park
DEMOLITION PLAN
Douglas, Wyoming