











Adopted June 2014

ALBUQUERQUE RAIL YARDS MASTER DEVELOPMENT PLAN

SAMITAUR CONSTRUCTS











COVER AND TITLE PAGES: PHOTO ESSAY, BUILDING OF THE RAIL YARDS, 1919-1922, UNIVERSITY OF NEW MEXICO, CENTER FOR SOUTHWEST RESEARCH

CITY OF ALBUQUERQUE
TWENTY FIRST COUNCIL

COUNCIL BILL NO. R-14-23 ENACTMENT NO. R-2014-054

SPONSORED BY: Isaac Benton, by request

RESOLUTION

ADOPTING A RAIL YARDS MASTER DEVELOPMENT PLAN AND ACCOMPANYING SITE DEVELOPMENT PLAN FOR SUBDIVISION TO PROVIDE THE APPROPRIATE POLICY FRAMEWORK AND REGULATIONS TO GUIDE THE REDEVELOPMENT OF THE RAIL YARDS SITE.

WHEREAS, the Rail Yards site is located on Tract A of the Plat of Tract A of AT&SF Railway Co. Machine Shop, located on 2nd Street SW between Cromwell Avenue and Hazeldine Avenue SW and contains approximately 27.3 acres; and

WHEREAS, the Rail Yards site is zoned SU2-HLS (Historic Locomotive Shops) per the Barelas Sector Development Plan (SDP); and

WHEREAS, the SU2-HLS zone Section A allows for a wide range of permissive uses, including multifamily residential (R-3), community commercial uses such as retail, restaurants, services (C-2), and light industrial (I-P) each with some limited exceptions; and

WHEREAS, the Barelas SDP SU-2/HLS zone Section K provides specifically for a Master Development Plan review by the EPC and approval by the City Council prior to the issuance of a building permit for the site (with very limited exceptions); and

WHEREAS, the Master Development Plan (MDP) as submitted contains a site development plan for subdivision with an accompanying Master Development Plan document that will guide redevelopment of the City-owned Albuquerque Rail Yards site; and

WHEREAS, the Rail Yards Advisory Board was established in March 2008 pursuant to City Council Resolution F/SR-08-47 and the responsibilities of the Rail Yards Advisory Board included the creation of a Request for Proposals for a master developer for the site and the selection of a master developer; and

WHEREAS, an RFP, for a Master Developer was issued in 2010 and in June 2012 Samitaur Constructs was selected as the Master Developer; and

WHEREAS, the Master Developer was charged with creating a Master Plan for the project area in cooperation with the City and the community; and

WHEREAS, the Rail Yards Master Development Plan was submitted to the Rail Yards Advisory Board for their review and the Rail Yards Advisory Board recommended approval of the plan to the EPC with certain amendments; and

WHEREAS, the Rail Yards property is located within the Central Urban Area of Albuquerque Bernalillo County Comprehensive Plan (2003) and the Barelas Sector Development Plan (2008); and

WHEREAS, the request furthers a preponderance of relevant goals and policies in the Albuquerque Bernalillo County Comprehensive Plan (2003) as it could lead to the redevelopment of a historically significant site that is located close to the downtown core, in the Barelas neighborhood. Redevelopment of the Rail Yards could provide a catalytic opportunity to spur economic development and provide jobs for the Barelas neighborhood and the wider downtown community. Section 5 of Master Development Plan provides Goals and Policies by which development decisions and City approvals will be evaluated, this section addresses economic development, housing, community connections, land use, architecture and historic rehabilitation and art and culture. (Albuquerque Bernalillo Comprehensive Plan Goals and Policies II.B.6; II.B.6.a, b; II.B.5; II.B.5.d,l,o; II.C.5; II.C.5.b; II.C.9; II.C.9.b; II.D.6.a, b); and

WHEREAS, the request furthers a preponderance of relevant policies and actions in the Barelas Sector Development Plan (2008). Rehabilitation of the site furthers policies addressing historic preservation, economic development and job creation for the Barelas community. Section 5 of Master Development Plan provides Goals and Policies by which development decisions and City approvals will be evaluated, this section addresses economic development, housing, community connections, land use, architecture and historic rehabilitation and art and culture. (Barelas Sector Development Plan LUZ1, LUZ3, LUZ7, Action 1.2.2.c, Action 4.6.1.e, E1, Action 5.2.1.a); and

WHEREAS, the Council accepts the Environmental Planning Commission's findings and conditions as set out in the Official Notice of Decision of December 12, 2013; and

WHEREAS, the Council finds that the conditions set out in the Environmental Planning Commission's recommendation of approval have been met.

BE IT RESOLVED BY THE COUNCIL, THE GOVERNING BODY OF THE CITY OF ALBUQUERQUE:

SECTION 1. The Rail Yards Master Development Plan and accompanying Site Development Plan for Subdivision (attached hereto as Exhibit A) are hereby approved and adopted.

SECTION 2: FINDINGS ADOPTED. The City Council adopts the following Findings as recommended by the Environmental Planning Commission:

(A) This is a request for a Master Development Plan and Site Development Plan for Subdivision for Tract A of the Plat of Tract A of AT&SF Railway Co. Machine Shop located on 2nd Street SW between Cromwell Avenue and Hazeldine Avenue and containing approximately 27.3 acres.

(B) The Rail Yards are zoned SU2-HLS (Historic Locomotive Shops) per the Barelas Sector Development Plan. The SU2-HLS zone Section A allows for a wide range of permissive uses, including multifamily residential (R-3), community commercial uses such as retail, restaurants, services (C-2), and light industrial (I-P) each with some limited exceptions. The Barelas SDP SU-2/HLS zone Section K provides specifically for a Master Development Plan review by the EPC and approval by the City Council prior to the issuance of a building permit for the site (with very limited exceptions).

(C) The Master Development Plan as submitted contains a site development plan for subdivision with an accompanying Master Development Plan document. The Master Development Plan is the document that will guide redevelopment of the City-owned Albuquerque Rail Yards site. The Albuquerque Rail Yards are located within the Barelas neighborhood and adjacent to the South Broadway neighborhood.

(D) The City of Albuquerque purchased the Rail Yards in 2007 (R-07-202, R-07-274, R-07-332) through a mixture of state and local funding. The Rail Yards Advisory Board (RYAB) was established in March 2008 pursuant to City Council Resolution (F/SR-08-47). The responsibilities of the RYAB included the creation of a Request for Proposals (RFP) for a master developer for the site, and the selection of a master developer. An RFP, for a Master Developer was issued in 2010 and in June 2012 Samitaur Constructs was selected as the Master Developer. Per the subsequent Master Plan Agreement, the Master Developer was charged with creating a Master Plan for the project area in cooperation with the City and the community.

(E) The Rail Yards property is located within the Central Urban Area of Albuquerque Bernalillo County Comprehensive Plan (2003) and the Barelas Sector Development Plan (2008).

(F) The Fire Station building on the site was designated a City Landmark on May 18th 1987 (O-1119) and on August 1st 1990 development guidelines for the Fire Station were adopted.

(G) The request furthers a preponderance of relevant goals and policies in the Albuquerque Bernalillo County Comprehensive Plan (2003) as it could lead to the redevelopment of a historically significant site that is located close to the downtown core, in the Barelas neighborhood. Redevelopment of the Rail Yards could provide a catalytic opportunity to spur economic development and provide jobs for the Barelas neighborhood and the wider downtown community. Section 5 of Master Development Plan provides Goals and Policies by which development decisions and City approvals will be evaluated, this sections addresses economic development, housing, community connections, land use, architecture and historic rehabilitation and art and culture. (Albuquerque Bernalillo Comprehensive Plan Goals and Policies II.B.6; II.B.6.a, b; II.B.5; II.B.5.d,i,o; II.C.5; II.C.5.b; II.C.9; II.C.9.b; II.D.6.a, b).

(H) The request furthers a preponderance of relevant policies and actions in the Barelas Sector Development Plan (2008). Rehabilitation of the site furthers policies addressing historic preservation, economic development and job creation for the Barelas community. Section 5 of Master Development Plan provides Goals and Policies by which development decisions and City approvals

will be evaluated, this section addresses economic development, housing, community connections, land use, architecture and historic rehabilitation and art and culture. (Barelas Sector Development Plan LUZ1, LUZ3, LUZ7, Action 1.2.2.c, Action 4.6.1.e, E1, Action 5.2.1.a).

(I) Section 10.4 of the Master Plan requests delegation of Site Development Plan for Building Permit to the Development Review Board with its review to include historic preservation planner and a Metropolitan Redevelopment planner.

(J) The Draft Master Plan was submitted to the Rail Yards Advisory Board for their review and recommendation. The RYAB unanimously voted to send the draft master plan to the EPC with a recommendation of approval with 7 amendments. The amendments address location of housing on the site, permit parking, amended language related to the WHEELS Museum, language to address the creation of a memorial onsite, language requiring a financial plan, addressing rail maintenance and related rail facilities and finally an amendment that would editing to clarify which aspects of the Master Development Plan are to be considered compulsory and which elements which are advisory.

(K) The Barelas Neighborhood Association, the Broadway Central Corridors Partnership, the Citizens Information Committee of Martineztown, the Downtown Neighborhoods Association, the Huning Highland Historic District Association, the Martineztown Work Group, the Raynolds Addition Neighborhood Association, the Santa Barbara Martineztown Association, the South Broadway Neighborhood Association and the Downtown Action Team were notified of this application. No facilitated meeting was held, though a number of well attended public meetings were held during the planning process and the Barelas and South Broadway Neighborhood Association, those most directly impacted by the re-development, were and continue to be participants on the Rail Yards Advisory Board. There is no known opposition to a recommendation of approval.

(L) Staff has received a number of emails through the online contact form on the City website for the Rail Yards. A number of the emails received discuss a desire for a public market to be located in the Blacksmith Shop or a similar building. The current use of the Blacksmith Shop as a special event space is intended as an interim use. The Master Plan proposes the final use for the Blacksmith Shop as office uses. While the Master Plan does not specifically

prohibit the eventual use of the space as a market, it does not provide policy guidance for the use of the Blacksmith Shop as a market.

SECTION 3. SEVERABILITY CLAUSE. If any section, paragraph, sentence, clause, word or phrase of this resolution is for any reason held to be invalid or unenforceable by any court of competent jurisdiction, such decision shall not affect the validity of the remaining provisions of this resolution. The Council hereby declares that it would have passed this resolution and each section, paragraph, sentence, clause, word or phrase thereof irrespective of any provision being declared unconstitutional or otherwise invalid.

SECTION 4. EFFECTIVE DATE. This resolution shall take effect five days after publication by title and general summary.

PASSED AND ADOPTED THIS 16th DAY OF June, 2014
BY A VOTE OF: 9 FOR 0 AGAINST.

Ken Sanchez, President
City Council

APPROVED THIS 3rd DAY OF July, 2014

Bill No. R-14-23

Richard J. Berry, Mayor
City of Albuquerque

ATTEST:

Trina M. Gurule, Acting City Clerk

[+ Bracketed/Underscored Material +] - New
[- Bracketed/Strikethrough Material -] - Deletion

Adopted June 2014

ALBUQUERQUE RAIL YARDS MASTER DEVELOPMENT PLAN

SAMITAUR CONSTRUCTS

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90' Bay

EXECUTIVE SUMMARY 1

1.0 EXECUTIVE SUMMARY

1.1 Project Introduction

This Master Development Plan (MDP) is the culmination of a three-year planning and design process initiated by the City of Albuquerque for the 27.3 acre site referred to as the "Rail Yards". The process included active involvement from many diverse stakeholders, including the City, Rail Yards Advisory Board, the Barelas, South Broadway, and San Jose Neighborhood Associations, WHEELS Museum, New Mexico Steam Locomotive and Railroad Historical Society, the general public, and other stakeholders. The MDP aims to respond to the input received from all of the interested parties regarding this unique property.

The MDP is intended to provide the necessary guidance for long term redevelopment of the Rail Yards property. It is not intended to be overly restrictive, but rather to provide flexibility with predictability over time.



Historic Santa Fe Rail Yard, Site Aerial

1.2 Project History and Process

Phase One - Request for Proposal

A Request For Proposal (RFP) was issued by the City of Albuquerque in July 2010 for a Master Developer to "plan, design, implement, and manage a mixed use redevelopment of the City-owned 27.3 acre site containing Historic Locomotive Shops (a.k.a. the Rail Yards)." The intent was to redevelop the Rail Yards into a mixed use project that would include a minimum of 30 units of workforce housing and a transportation museum to be operated by the WHEELS (We Have Everything Everyone Loves Spinning) Museum Foundation. The City's Rail Yards Advisory Board was responsible for recommending the selection of the Master Developer to the Mayor and the City Council. The RFP provided a list of purposes for the redevelopment project as follows:

1. Develop Workforce Housing and a museum to be operated by the WHEELS Museum to meet legislative requirements;

2. Establish a focal point for social and commercial activity;

3. Restore connectivity between the site and adjoining neighborhoods, and strengthen connections with other area amenities and resources;

4. Catalyze further neighborhood redevelopment in collaboration with the Barelas and South Broadway neighborhoods;

5. Preserve and re-use the site's historical architectural assets and unique visual environment;

6. Stimulate redevelopment of Albuquerque's greater downtown area;

7. Maximize transportation opportunities offered by proximity to the "Railrunner" Commuter Train Station, city transit hub and bicycle network;

8. Generate employment opportunities, with a mix of living and high wage jobs, as well as job training; and

9. Provide for the substantial public and social needs of the community, including, for example, health care, job training, education, immigrant services, and childcare.

Proposals were submitted to the City in September 2010. Samitaur Constructs (Samitaur) was subsequently selected as the Master Developer for the redevelopment project. The project is envisioned to be developed in four phases, with Phase 1 being the RFP process, Phase 2 entailing the creation of the Master Development Plan, Phase 3 entailing the design and approval of the Master Development Plan, and Phase 4 covering the disposition, financing, construction, and management of the Rail Yards Redevelopment project to be regulated pursuant to a Master Development and Disposition Agreement to be negotiated between the City and Samitaur.

Phase Two and Phase Three Master Plan Agreement

The Phase Two and Phase Three Master Plan Agreement is between the City of Albuquerque and Samitaur. The agreement, which was signed on June 15, 2012, confirms the selection of Samitaur by the City as the Master Developer of the Rail Yards project and confers upon Samitaur the right to develop the entire project area under the City's ownership or control. The Master Plan Agreement provides the framework for the Master Development and Disposition Agreement. The Master Plan Agreement defines the project area as follows:

> Tract A as shown on the Plat of Tract A, A.T. & S.F. Railway Company Machine Shop, Albuquerque, Bernalillo County, New Mexico, as the same is shown and designated on the plat thereof, filed in the office of the County Clerk for Bernalillo County, New Mexico on January 25, 1996, in Plat Book 96C, Folio 44, containing approximately 27.32 acres more or less.

The Rail Yards property was acquired in 2007 by the City with funds appropriate for specific purposes, including state and local funding

sources. Pursuant to the RFP, state funds, and City Council Resolutions R-07-202, R-07-274, and R-07-332, the Master Development Plan shall address community revitalization through the elimination of blighted conditions and emphasis on economic development, and shall include a minimum of 30 units of workforce housing and a location for the WHEELS Museum.

The Master Plan Agreement addresses financing for on-site and off-site infrastructure. Samitaur is responsible for on-site infrastructure needed to implement the Master Development Plan. Samitaur will be responsible for any off-site infrastructure only to the extent that it is required to benefit the project. The City may participate in funding off-site improvements to the extent that the infrastructure capacity required by the City exceeds that required for the project.

The Master Plan Agreement provides language regarding environmental issues, traffic impact study, conceptual drainage plan, and conceptual water, sewer, and dry utilities plans. In regard to traffic impact analyses and the evaluation of the capacity of intersections, the Master Plan Agreement gives the Planning Director the authority to accept alternative analyses, including the evaluation of public transportation opportunities, shuttle services to City parking structures, etc.

1.3 Master Development Plan Intent

The MDP is a long-range planning document that is intended to guide redevelopment of the Rail Yards property into a vibrant, mixed use employment and cultural center that includes commercial, office, light industrial and institutional uses that are complemented by residential development and public spaces. In order to fulfill the vision for redevelopment of this property, the MDP provides:

- The necessary framework to direct new development that respects the historic condition and context of the Rail Yards property;
- A description of the history of the site and neighborhood context, physical conditions, public input process, regulatory framework, and guiding principles, goals, and policies to ensure users of the document understand the intent and vision for redevelopment activities;
- The framework for physical redevelopment of the site graphically illustrated by a Site Development Plan for Subdivision and Landscape Master Plan and described in narrative format through the Development Regulations and Design Guidelines.


City of Albuq - N. M.

EXISTING CONDITIONS 2

2.0 EXISTING CONDITIONS

2.1 Neighborhood History & Context

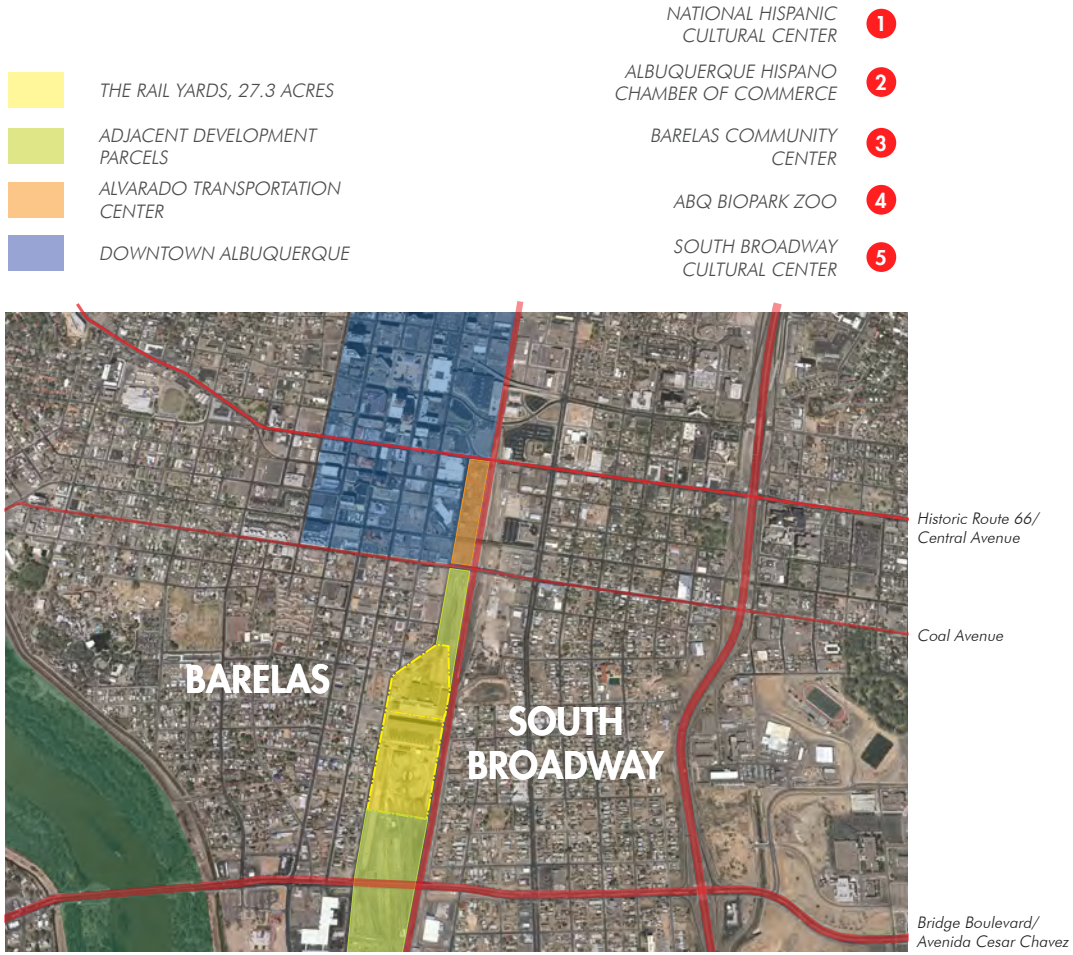
The Rail Yards property lies within the Barelas neighborhood, one of Albuquerque's oldest, and is adjacent to the South Broadway neighborhood. Originally settled as a farming community, it was reshaped by the establishment of the railroad in the 1880s. By the 1900s, Barelas was flourishing, with many of its residents were employed by the Atchison, Topeka and Santa Fe Railway (AT&SF).

In the mid-1920s, South 4th Street in Barelas was designated part of Route 66 and the Pan American Highway (U.S. 85), which helped establish a thriving commercial corridor active from the 1930s through the 1950s. The decline of the railroad industry and the construction of Interstate 25 negatively affected the community, as did the urban renewal program of the 1970s, which led to industrial development replacing much of the housing stock in south Barelas. However, the Barelas neighborhood has added new amenities in recent decades including the Albuquerque Hispano Chamber of Commerce and, further south, the National Hispanic Cultural Center. These additions have reaffirmed its history and community character.

Along the eastern edge of the Rail Yards is the South Broadway neighborhood. Much of the community's growth took place between 1885 and 1925, following its founding by Antonio Sandoval, a wealthy landowner responsible for constructing the Barelas ditch, which drained and irrigated the surrounding area. As in Barelas, many of South Broadway's residents made their living through agricultural pursuits before transitioning to jobs at the Rail Yards and a local iron foundry.

South Broadway urbanized rapidly during this period, only to suffer similar economic and population decline concurrent to that of the railroad industry. Recently, the United South Broadway Corporation and other organizations have worked to provide affordable housing for residents of the community.

The redevelopment of the Rail Yards provides an opportunity for Barelas, South Broadway and Downtown Albuquerque to enrich their respective individual identities while rallying around a new collective identity to whose development each is crucial. Residents of these communities have expressed both excitement and reservations regarding redevelopment plans for the Rail Yards and, given the



Albuquerque, Map showing relationship of Rail Yards site to adjacent neighborhoods



Figure 1: Site Aerial Context

Aerial view Albuquerque showing relationship of Rail Yards site to surrounding civic amenities

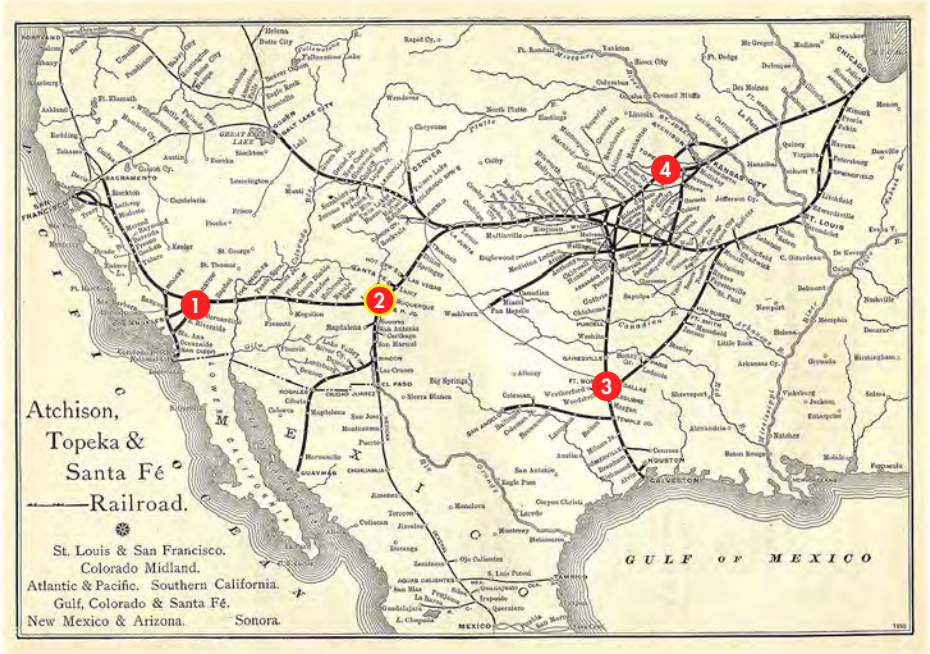
personal ties many have to the history of the Rail Yards, for good reason. Nevertheless, successful redevelopment truly has the potential to be a force of unification for the communities, the city, and the state of New Mexico.

2.2 Site History

"Between 1880 and 1930, the single most important factor in Albuquerque's transformation from a farming village to a commercial and industrial center, and its emergence as the leading city of New Mexico, was the railroad. Throughout this period, the Santa Fe Railway was the city's leading employer, culminating in an estimated 1500 employees during World War II." (Wilson, 1986)

The impact of a transcontinental railroad on the economic development of the Terrritory of New Mexico, and the subsequent growth of Albuquerque, cannot be overstated. As was the case with other previous economic lifelines in the region, such as the Camino Real de Tierra Adentro in the sixteenth through early nineteenth centuries and the Santa Fe Trail in the early to mid-nineteenth century, the arrival of the Atchison, Topeka & Santa Fe (AT&SF) Railway into northeast New Mexico in the winter of 1879 was a significant historical event for not only New Mexico and Albuquerque but the entire region as well. (Dodge et al, 2014)

The Historic Locomotive Shops on the Rail Yards site were built by the AT&SF Railway between 1914 and 1924 as a maintenance and repair facility for steam locomotives that served the southwestern United States and was one of only four such facilities built for that purpose. (The other three being located in Topeka, Kan., Cleburne, Texas, and San Bernardino, Calif.). The shop complex was outfitted with the latest engineering technology for locomotive repair and industrial efficiency. As such, the shops were an integral part of the AT&SF's railroad transportation system, which provided freight and passenger service for more than six decades. The Locomotive Shops also played an integral part in the ecomonic history of Albuquerque by their status as



Early map of the AT&SF Railraod showing relationship of Albuquerque to other major rail shop facilities; 1) San Bernardino, California 2) Albuquerque, New Mexico 3) Cleburne, Texas 4) Topeka, Kansas



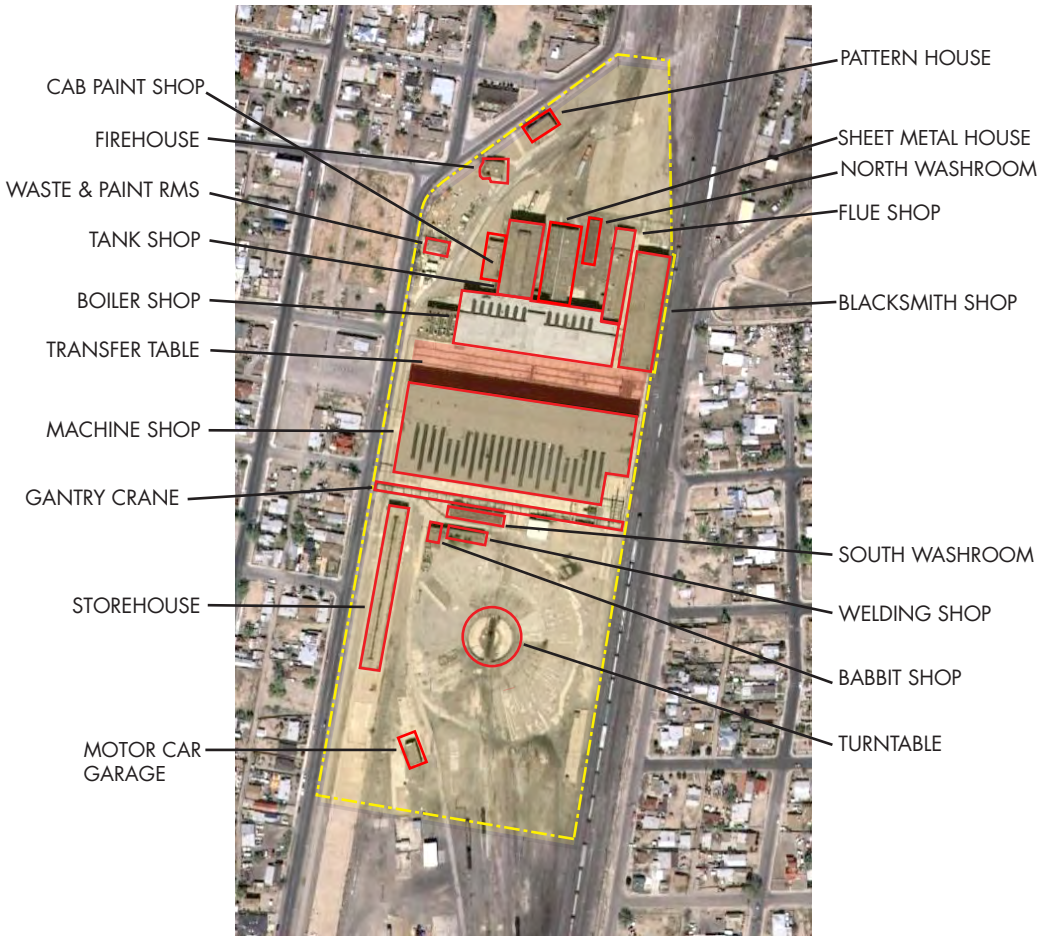
Rail Yards upon completion of Machine Shop, ~1922



Albuquerque as Railroad Town, 1886



Rail Yards, San Bernardino, CA (demolished 1996) showing similarity of shop complex to Albuquerque Rail Yards



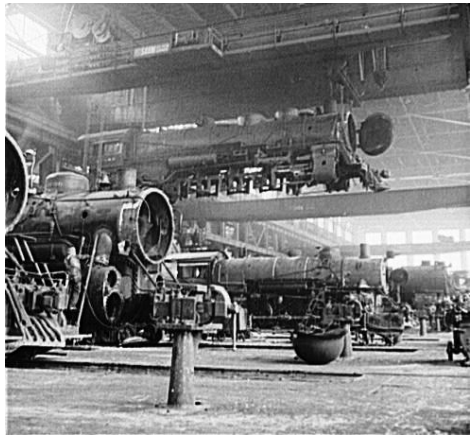
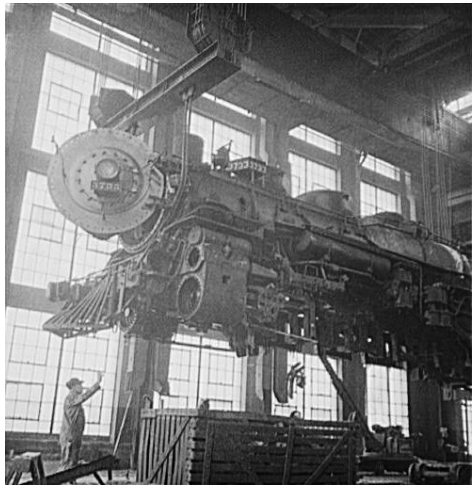
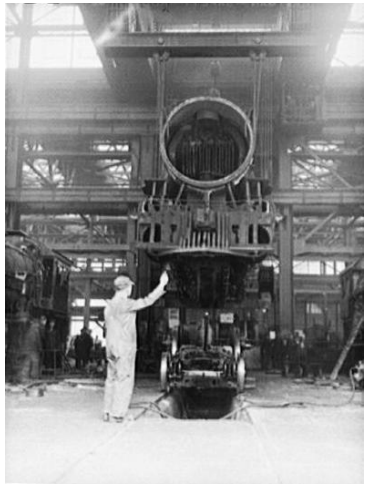
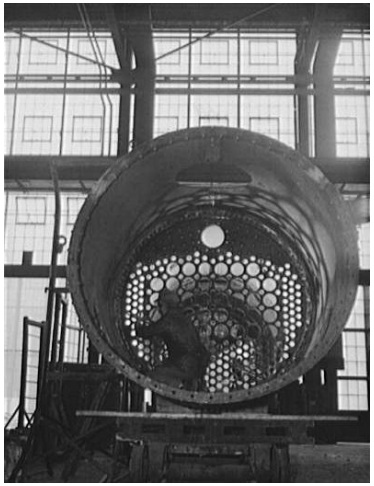
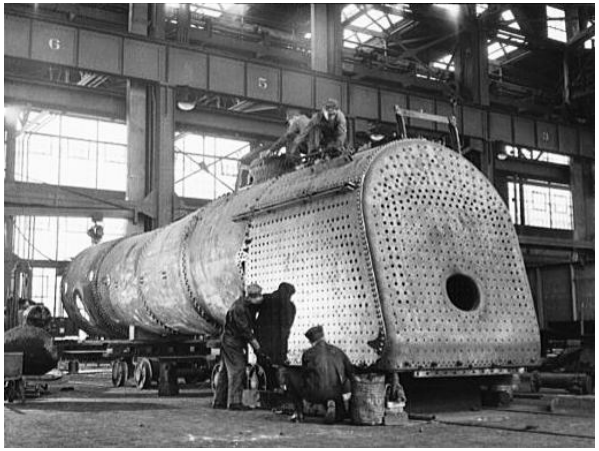
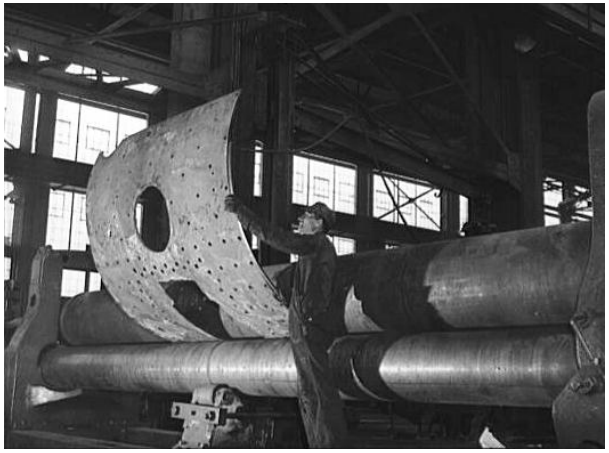
Rail Yards, Major Historic Buildings

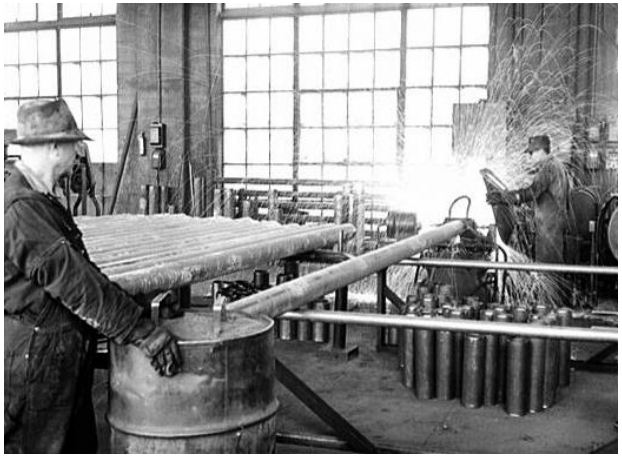
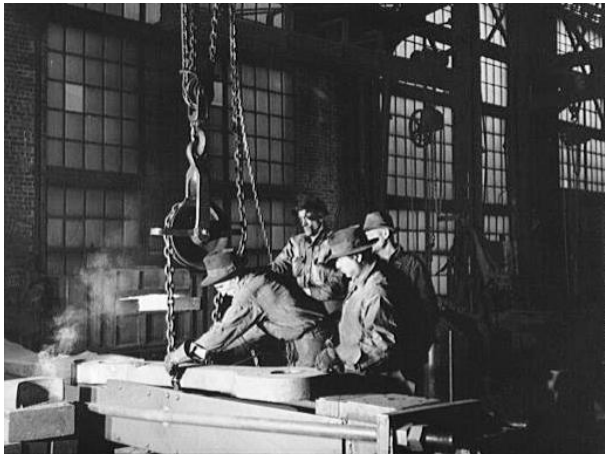
the second largest industrial complex in the state and the city's largest employer. The shops played a major role in the city's economic development, particularly in the adjacent neighborhoods of Barelas, South Broadway and San Jose (Dodge et al, 2014).

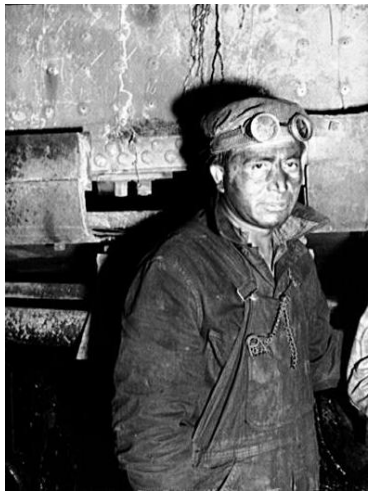
Beginning in 1914, and continuing intermittently for the next ten years, the Rail Yards expansion resulted in the completion of more than twenty-five buildings, structures, and other improvements spread over twenty-seven acres. The resulting complex represented the latest in industrial construction techniques and installing equipment that embodied state-of-the-art engineering technology for steam locomotive repair and maintenance - a task that required a great deal of daily maintenance as well as regular, periodic major overhauls. Every day, or every 100 to 150 miles, it was necessary to remove clinkers (the residue of unfired or partially fired coal) from the locomotive's firebox, clean the fire tubes, flues, and smoke boxes, wash out mineral residue from the boiler, and inspect all moving parts for general wear and tear. Major overhauls were undertaken every 400,000 miles of operation that included a complete disassembly of the engine, the cleaning and repairing of all moving parts including trueing the wheels, and patching or replacing the boiler or firebox. All of this work, including the reconditioning and fabrication of replacement parts, was done at Albuquerque's locomotive shops. (Dodge et al, 2014)

At their height in the mid 1940s, the shops serviced an average of 40 locomotives per month. The complex was built at a time when industrial architecture was making a shift nationwide from large masonry load bearing walls with timber roof construction to steel structures with thinner walls of brick veneer or a structure of reinforced concrete. Both steel and concrete structure allowed for much larger window openings, and therefore, better interior day lighting and ventilation. Because of the railroad's leading role, the remaining structures are now the most prominent reminders of this important period in Albuquerque's history. (Wilson, 1986)

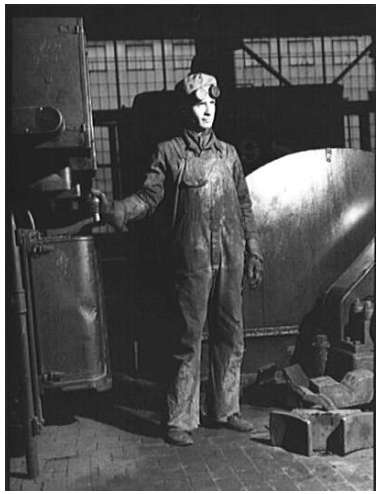
Figure 2: Spirit of the Rail Yards









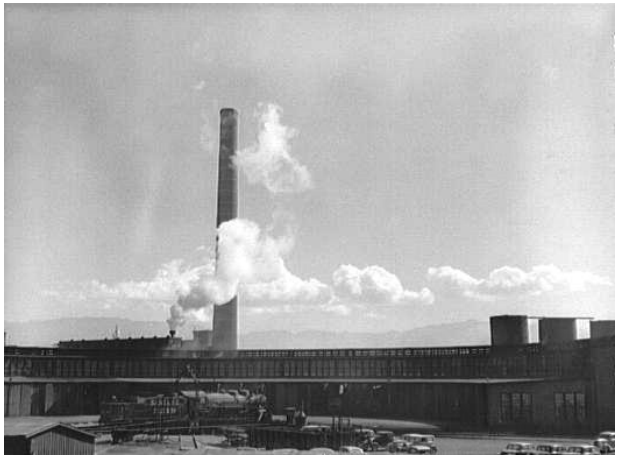
The "Spirit" of the Rail Yards referenced throughout this Master Development Plan is embodied in the images shown in this spread; American ingenuity, craftsmanship and pride of work. The intent of the proposed redevelopment is to continue this lineage of innovation into the modern era — not through nostalgia, but by rekindling the original spirit.











ALL IMAGES: JACK DELANO, 1943, FARM SECURITY ADMINISTRATION/OFFICE OF WAR INFORMATION PHOTOGRAPH COLLECTION (LIBRARY OF CONGRESS)

2.2.1 Past Preservation Efforts

The Santa Fe Railway demolished its landmark Hotel Alvarado in 1970, removing the most treasured of Albuquerque's railroad buildings after a local preservation effort stalled. Its loss informs local thinking about the value of preserving the city's remaining historic buildings, especially those of the railroad.

In 1986, the Santa Fe Railway demolished the Roundhouse, Power Plant, and 230-foot smokestack, thwarting the City's attempt to designate the complex as a City Landmark and listing on both state and national historic registers that could have helped prevent demolition. Again Albuquerque's railroad architectural heritage was harmed, drawing even more attention to what remains of the massive Rail Yards.

The historic resources remaining from the shops complex constitute the largest historic industrial plant in the state. They employ a variety of materials and features which reflect the rapid innovation of industrial design and architecture at the time.

The Rail Yards buildings, because of the quality of their design, construction, and style, are an excellent representation of this industrial aspect of the city's history and are eligible for listing on the New Mexico Register of Cultural Properties and National Register of Historic Places, as well as designation as Albuquerque City Landmarks.

Refer to Appendix C for a photographic survey that provides a brief description and photo documentation of some of the historic resources to be preserved and adaptively reused.

2.3 Existing Site Conditions

The 27.3 acre Rail Yards site is rectangular in shape and oriented north-south, measuring approximately 2000ft. in length and 650ft in width. The site is bordered on the north and south by parcels owned by the Burlington Northern Santa Fe Railroad (BNSF). These parcels are currently in limited use as railway support facilities. The site is bordered to the west by 2nd Street for the majority of its perimeter with the exception of the northern most portions, which tapers to follow 1st Street. To the east, the site lies directly adjacent to the railroad alignment also controlled by BNSF and is in active use for both freight and passenger train service.

2.3.1 Neighborhood Edges

The relationship between the Rail Yards and the surrounding neighborhoods of Barelas and South Broadway is characteristic of many American cities: modest working class, single-family detached homes located immediately adjacent to the main industry or factory in town. The images on the following pages show views both to and from the Rail Yards site out to these neighborhoods.

2.3.2 Existing Building Conditions

The existing property edge is barricaded by a chain link fence and off-limits to the community. For years, the Rail Yards have been



View of Rail Yards from Santa Fe Avenue with Barelas neighborhood homes in foreground.



View west toward Barelas neighborhood from roof of Machine Shop.



View east toward South Broadway neighborhood from roof of Machine Shop.



View South toward former site of Roundhouse Building from roof of Machine Shop. Turntable is still in operation.



View South down fire runway between Machine Shop and Barelas neighborhood to the West.

abandoned and left in a state of increasing disrepair as evidenced by the photos shown below. Beyond the cosmetic damages of graffiti and broken glass, lie the more signficant concerns of potential structural damage and water infiltration damage through large areas of roof failure that have manifested in many of the large structures such as the Machine and Boiler Shops. It has been reported that storms have continued to erode large areas of roof sheathing causing the existing creosote flooring to be significantly damaged. In addition, one of the large 20-foot-tall Machine Shop doors recently collapsed from its track.

The Master Development Plan represents a first step toward stemming the tide of neglect and abandonment that unfortunately characterizes the current condition of the once grand Rail Yards complex.

2.3.3 Easements

There are two current easements affecting the site. The first allows for the continued use of the Turntable and access thereto, and the second allows for a continuous 10ft. utility easement running along the western perimeter of the site. Refer to the Site Development Plan for Subdivision drawing in Section 6 for the location of each.

2.3.4 Utilities

Given that the Rail Yards were in use up until the 1990s, the site is serviced by all requisite utilities: electricity, gas, water, sewer, and storm drain. The site is not currently serviced by fiber optic telecommunications. Utility infrastructure and capacity, however, are likely insufficient to accommodate the level of redevelopment anticipated by the Master Development Plan.

2.3.5 Environmental Conditions

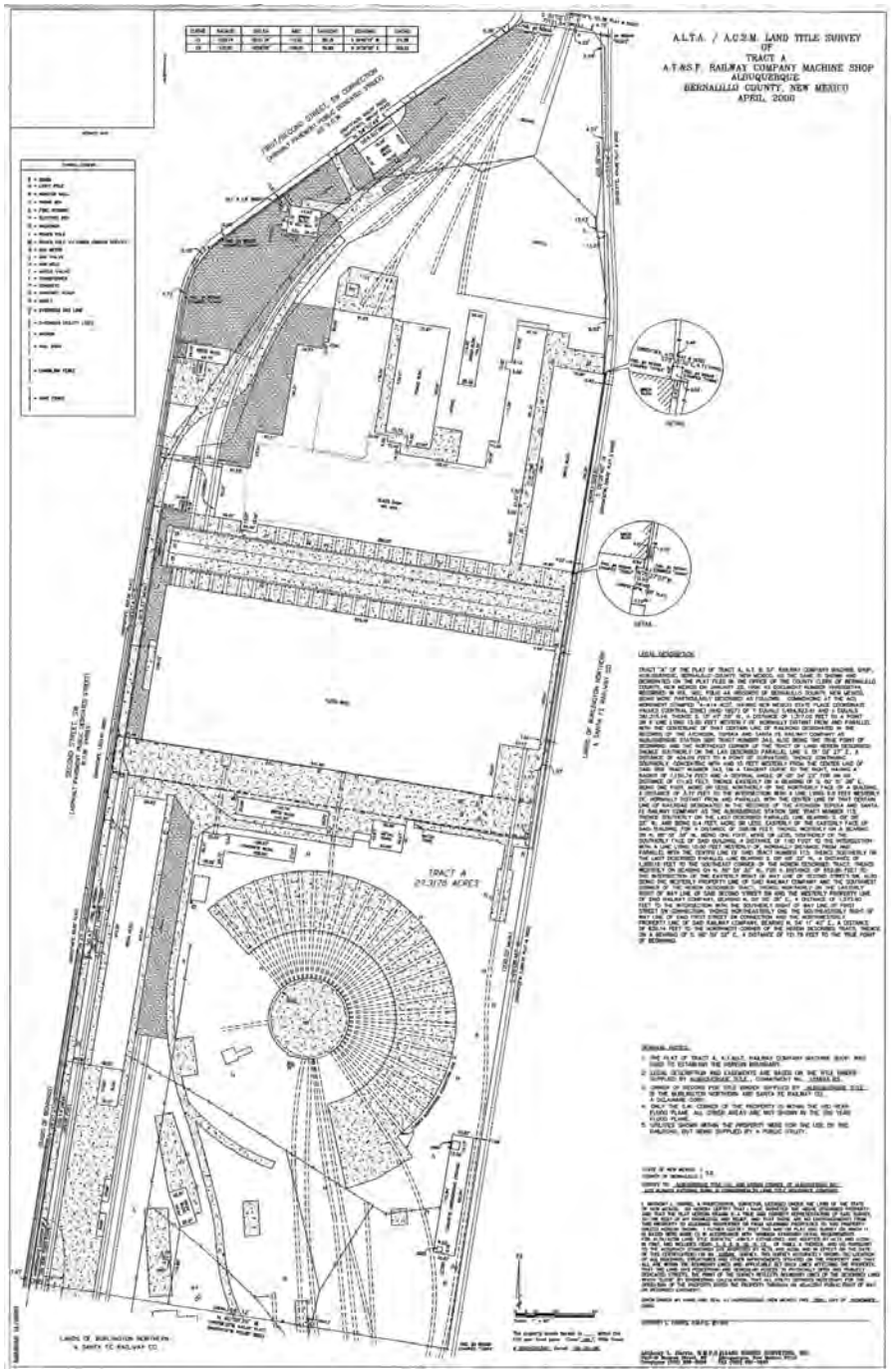
As a former industrial site, the Rail Yards has some soil and groundwater contamination caused by former site activities. The environmental condition of the site has been extensively studied and there are now few, if any, data gaps. Significant removal of



Current condition of Rail Yards buildings characterized by vandalism, graffiti and general neglect



Current condition of Rail Yards buildings



Rail Yards, ALTA Land Survey, 2000

contaminated soil has already been accomplished. Contaminated areas still within the site include the following:

- The southern one-third of the site was formerly occupied by a number of above ground fuel tanks, below ground fuel cellars and an oil/water separator. Some of these storage vessels leaked and, therefore, soils have been contaminated with petroleum fuel, primarily diesel and motor oil. Also, soil around a former oil cellar north of the Blacksmith Shop and along the eastern site boundary remains contaminated with petroleum. Groundwater contamination appears to be limited to the southeast corner of the site.

- Sandblasting and battery storage caused lead contamination of soil in two areas north of the main buildings on the site. Much of the lead-contaminated soil has been removed. Lead contamination of shallow soils still exists in more widespread areas of the site.

- Most paint on the historic structures is lead-based, and the glazing of some of the windows contains asbestos.

- Petroleum contamination exists in the soil under the Machine Shop, and lead contamination exists in the soil under the Paint Shop.



Machine Shop, View from roof clerestory looking west

Figure 3: Spirit of Place



Machine Shop, View from roof clerestory looking east


Tom
Conklin
Herb.
Bill

PUBLIC INPUT PROCESS 3

3.0 PUBLIC INPUT PROCESS

Introduction

The Rail Yards MDP process involved a multi-pronged approach for engaging the public. This included the establishment of and meetings with the Rail Yards Advisory Board, public meetings and open houses, and hearings before the Environmental Planning Commission and the City Council. This section provides information about the public outreach efforts made by the planning team as part of the process to develop the Rail Yards Master Development Plan.The City and Samitaur relied heavily on input received during the process to inform the concepts and goals and policies of the Master Plan, so it was important to design a robust and engaging public input process that provided ample opportunities for interested parties to receive information and offer meaningful feedback.

3.1 Rail Yards Advisory Board

The Rail Yards Advisory Board was established by City Council Resolution F/S R-08-47. Per the Resolution, the Advisory Board was charged with assisting the City in selecting the master developer and overseeing the redevelopment process, including advising the City in regard to the approval and implementation of the MDP, the establishment of interim and/or long-term uses, and the programming and expenditure of capital and operating funds to support redevelopment efforts. The Advisory Board is comprised of elected officials and representatives from the community in order to "ensure transparency, extensive community consultation, and collaboration in the decision-making process".

Per the Resolution, the Rail Yards Advisory Board consists of the following representatives:

- City of Albuquerque (two members) - The Mayor or Mayor's designee and the City Councilor elected to represent the Rail Yards area.
- State of New Mexico (six members) - A representative appointed by the Governor, the State Senators from Districts 12 and 14, and State Representatives from Districts 11and 14.
- Bernalillo County (one member) - The County Commissioner from District 2
- A representative of the WHEELS Museum
- A representative from the Barelas neighborhood
- A representative from the South Broadway neighborhood
- A representative of the New Mexico District Council of the Urban Land Institute
- If applicable, the developer selected to develop Workforce Housing

3.2 Public Meetings/ Workshops

The City undertook extensive notification efforts in order to reach a wide audience and invite broad participation in the planning process. Initial means of notifying the public of the kick-off meetings for the Master Planning process included:

- Direct mail (nearly 4,000 pieces) to all property owners and residents in the Barelas and South Broadway neighborhoods, and notification of all Downtown area neighborhood associations. The mail piece included a letter from Mayor Richard J. Berry, City Councilor Isaac Benton, and then-City Councilor Debbie O'Malley that invited them to the Master Plan kick-off meetings in August, 2012, and explained how to stay engaged in the process. Also included in the mailing was a postcard to return to the Project Coordinator to request to be added to the notification list, and a brochure containing background information about the project and the seven guiding principles from the Master Plan Agreement.
- Article in the August, 2012, Neighborhood Newsletter (distributed to all contacts on file with the City's Office

Rail Yards Master Plan
Public Meetings

Kick-Off Meetings
Thursday, August 23, 2012, 6 PM
National Hispanic Cultural Center

Saturday, August 25, 2012, 10 AM
Barelas Community Center

Saturday, August 25, 2012, 2 PM
South Broadway Cultural Center

Presentation of Initial Master Plan Concepts
Thursday, October 25, 2012, 6 PM
Barelas Community Center

Open House / Tours of Site
Saturday, December 1, 2012, 10 AM–2 PM
Albuquerque Rail Yards

of Neighborhood Coordination). The article contained information about the kick-off meetings, the seven guiding principles from the Master Plan Agreement and the address for the Rail Yards website.

- Media Advisory on August 20, 2012. The media advisory contained information about the kick-off meetings and invited the public to attend the meetings to have a chance to win a guided tour of the site.
- Rail Yards Website. The City maintains a website containing information about the project, including its history and updates about the Master Planning process. The website also provides an opportunity for the public to submit comments directly to the planning team via an online form.

Follow-up communication was maintained via an email distribution list managed by City Planning Department staff. Emails were sent to notify people when new materials, such as meeting summaries, were available on the Rail Yards website and with information and reminders about upcoming meetings and tour opportunities. City Planning Department staff also served as the primary point of contact for people with questions about the process or who wanted to submit comments for consideration.

The public input process for the Rail Yards MDP started in August 2012. The City and Samitaur held three community kick-off meetings on August 23 and 25, 2012 to explain the planning process, introduce the project team, and receive initial feedback from the public. The first meeting was held at the National Hispanic Cultural Center for the general public. The second meeting was held at Barelas Community Center and was intended to reach out to the Barelas community. The third meeting was held at the South Broadway Cultural Center and was intended for the South Broadway community. A raffle was held at the meetings for a tour of the Rail Yards property at a later date in September.

Following the public kick-off meetings in August, the planning team met with specific stakeholders to solicit feedback on issues affecting particular aspects of the redevelopment of the Rail Yards. The organization and individuals the team met with were:

- Albuquerque Convention and Visitors Bureau
- Albuquerque Economic Development
- Albuquerque Hispano Chamber of Commerce
- Barelas Neighborhood Association / Barelas Community Coalition*
- Bernalillo County Economic Development staff
- City of Albuquerque

- Mayor Richard J. Berry
- Department of Family & Community Service staff and Affordable Housing Committee representative
- Transit Department Staff
- City of Albuquerque Economic Development staff
- Downtown Action Team
- Economic Forum
- Mid Region Council of Governments
- New Mexico Steam Locomotive 2926 / Railroad Historic Society
- South Broadway Neighborhood Association*
- WHEELS Museum

* NOTE: In addition to sit-down meetings with the neighborhoods, the planning team went on tours of the Barelas and South Broadway neighborhoods, guided by residents, in order to understand the sensitive interfaces with and important connections to the site. As with feedback received from the public, the planning team took into consideration the ideas and input received via the targeted stakeholder meetings in developing the initial Master Plan concepts.

A general public meeting was held by the City and Samitaur on October 25, 2012 at the Barelas Community Center. Over 100 people attended this meeting, including members of the Rail Yards Advisory Board. The draft plan concepts, which were based upon the RFP, the Guiding Principles in the Master Plan Agreement, and the feedback received at the three August meetings and the stakeholder meetings held in September 2012, were presented to the public by the Samitaur project team.

The presentation focused on the site organization, use patterns, massing and scale of the buildings, project phasing, and the architectural concepts for the site. A number of themes emerged at the meeting, including ideas and comments from participants regarding sustainable design elements, edge treatment (proposed "Acoustic Mounds" concept), existing buildings and spaces, community open space, connection to neighborhoods, workforce housing, jobs and economic development, and planning process and phasing. In addition to the evening meeting, the City and Samitaur held three tours during the day at the Rail Yards property.

The next general public meeting was held on December 1, 2012 at the Rail Yards property. This meeting was designed as an open house, and over 300 people attended this event throughout the day. Samitaur presented its draft plan concepts and the project team and City staff were on hand to answer questions and record comments from the participants. Over 200 people took guided tours of the Rail Yards during this event. Given the popularity of the tours, and the limited number that could be held during this event, other interested participants signed up for future tours. Comments received were organized by the meeting facilitators into general categories, including values/principles for the master plan, specific uses, features, and site improvements, tours of the site, and personal connection to the site and its redevelopment.

A presentation of the master planning process and draft concepts for redevelopment was given to the Rail Yards Advisory Board on January 9, 2013. City staff provided an overview of the public process to date, and Samitaur and its consultants introduced the draft redevelopment concepts. Frederick and Laurie Samitaur-Smith emphasized the importance of creating jobs for local residents. The consultants also explained the formal approval process for the MDP, including receiving recommendations from the Rail Yards Advisory Board and the Environmental Planning Commission prior to seeking final approval from the City Council.

3.3 Public Input Process and Major Planning Themes

In order to ensure an open and participatory dialogue, the City engaged local consultants Tim Karpoff & Associates to facilitate the series of public meetings that were used to receive input and communicate initial concepts for the Master Development Plan. The

facilitation team moderated and recorded the discussions at the kick-off meetings in August and the first presentation of the plan concepts on October 25, 2012. The team also helped host the December 1, 2012, Open House at the Rail Yards, during which facilitation team members oriented both newcomers and veterans of the process to the activities of the planning effort. After each of the meetings, the facilitators provided a summary report documenting the input received. These reports were shared with the public through email distribution and the website, and were used by the planning team in developing the Master Development Plan.

With its many features and structures of varying construction, sizes, and historic uses, the Rail Yards site can be difficult to fully understand and appreciate without having experienced it for oneself. Therefore, in addition to public meetings, tours of the site were offered during the Master Plan process to provide the public with opportunities to gain a firsthand understanding of the site so that they could be more informed when commenting on the Master Development Plan's proposals. For safety and liability reasons, tours had to be limited in size and number, but approximately 300 people had the opportunity to tour the site as part of the Master Plan process. All in all, hundreds of people participated in the public meetings and tours, including residents of the adjacent neighborhoods, people representing organizations with a specific interest in the project, former employees of the AT&SF/BNSF railroad shops, and individuals from across the city and region who are interested in how the site will be redeveloped. Many people attended the initial kick-off meetings as well as follow-up meetings, which provided continuity in the process and afforded the planning team the opportunity to develop relationships with interested individuals and parties.

A number of major planning themes emerged from the comments provided by the participants at the public meetings. These themes are generally consistent with the guiding principles of the Master Plan Agreement and are summarized as follows:

- The MDP should embrace the concept of creating "synergy" between the jobs created at the Rail Yards and employment of neighborhood residents, in order to raise the economic status for Barelas and South Broadway neighborhoods.
- Public access to the historic buildings should be maintained to the extent feasible.
- Provide the opportunity for micro-businesses to locate at the Rail Yards, and not limit users to a single commercial business.
- Provide landscaped, public spaces within the Rail Yards, including turf grass, trees, and shade structures.
- Promote and ensure better transit access to the Rail Yards. Prioritize redevelopment of and recognition of the Round House as an important element of Albuquerque's history.
- Provide the opportunity for the WHEELS Museum to be located within the Round House.
- Complete the environmental clean-up of the Rail Yards property.
- Continue providing public access through events and/or tours of the Rail Yards property in order to build more public support and momentum for redevelopment.



2011-03-04, Press Conference with Mayor Richard Berry, Councilor Isaac Benton, the Samitaur Smiths, and Giora Solar, Rail Yards



2012-10-25, Model presentation, Barelas Community Center



2012-10-25, Community Presentation, Barelas Community Center



2012-10-25, Community Presentation, Barelas Community Center



2012-10-25, Community Presentation, Barelas Community Center



2012-12-01, Public Tours, Rail Yards



2012-12-01, Community Presentation



2012-12- 01, Community Presentation, Rail Yards


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ZONING COMPLIANCE & REGULATORY FRAMEWORK 4

4.0 ZONING COMPLIANCE & REGULATORY FRAMEWORK

Introduction

This section provides a description of the City policies and existing zoning and regulatory framework provided through the Albuquerque / Bernalillo County Comprehensive Plan and the Barelas Sector Development Plan. The intent is to illustrate how the MDP and the site design comply with the existing zoning, plans, and policies.

4.1 Albuquerque/ Bernalillo County Comprehensive Plan

The Albuquerque/Bernalillo County Comprehensive Plan (Comprehensive Plan) is a Rank 1 plan. The Rail Yards property is located within the Central Urban area as designated by the Comprehensive Plan. The Central Urban area is a portion of the Established Urban area and is subject to those policies in addition to the Central Urban policies. The goal of the Central Urban area is as follows:

"The Goal is to promote the Central Urban Area as a focus for arts, cultural, and public facilities / activities while recognizing and enhancing the character of its residential neighborhoods and its importance as the historic center of the City."

Applicable policies address locating public, cultural, and arts facilities in the Central Urban area and preserving existing facilities, upgrading neighborhoods through capital improvements, and creating links between these facilities and residential areas. Policies in the Established Urban area address a variety of issues applicable to the Rail Yards property.

Applicable policies and how the MDP furthers them are as follows:

Land Use Policies

Policy II.B.5.d: "The location, intensity, and design of new development shall respect existing neighborhood values, natural environmental conditions and carrying capacities, scenic resources, and resources of other social, cultural, and recreational concern."

Policy II.B.5.i: "Employment and service uses shall be located to complement residential areas and sited to minimize the adverse effects of noise, lighting, pollution, and traffic on residential environments."

Policy II.B.5.o: "Redevelopment and rehabilitation of older neighborhoods in the Established Urban area shall be continued and strengthened."

Economic Development Policies

Policy II.D.6.a: "New employment opportunities which will accommodate a wide range of occupational skills and salary levels shall be encouraged and new jobs located convenient to areas of most need."

Policy II.D.6.b: "Development of local business enterprises as well as the recruitment of outside firms shall be emphasized."

Policy II.D.6.c: "Opportunities for improvement in occupational skills and advancement shall be encouraged."

The Rail Yards MDP, and the SU-2/HLS zoning as designated by the Barelas Sector Development Plan, have been designed to be consistent with and fulfill these land use and economic development policies. The MDP includes the necessary safeguards for developing new commercial and light industrial uses alongside existing and future residential uses, both adjacent to and within the site.

The MDP provides the framework for redevelopment of the Rail Yards site in order to reinvigorate this area and bring new life to this long vacant property within an historically significant area of Albuquerque. The Development Regulations, Design Guidelines and the Site Development Plan for Subdivision contained within the MDP address noise, lighting, sustainability, and landscape issues within and adjacent to the property.

The proposed redevelopment strategies contained in the MDP respect neighborhood values by providing for the opportunity of new, permanent jobs for local residents with a potential range of occupational skills and salary levels. Construction jobs will also be an important component of the project, which will last for many years until full development of the property is achieved. The MDP provides physical connections and entry points from surrounding neighborhoods to the property for pedestrians, bicyclists, and vehicular traffic. The MDP provides strategies for interim and permanent uses.

4.2 Barelas Sector Development Plan & Existing Zoning

The Rail Yards property is located within the Barelas Sector Development Plan area. The Barelas Sector Development Plan (Barelas SDP), a Rank Three plan, was adopted in April 2008 and zoned the Rail Yards property as SU-2/HLS (Historic Locomotive Shops).

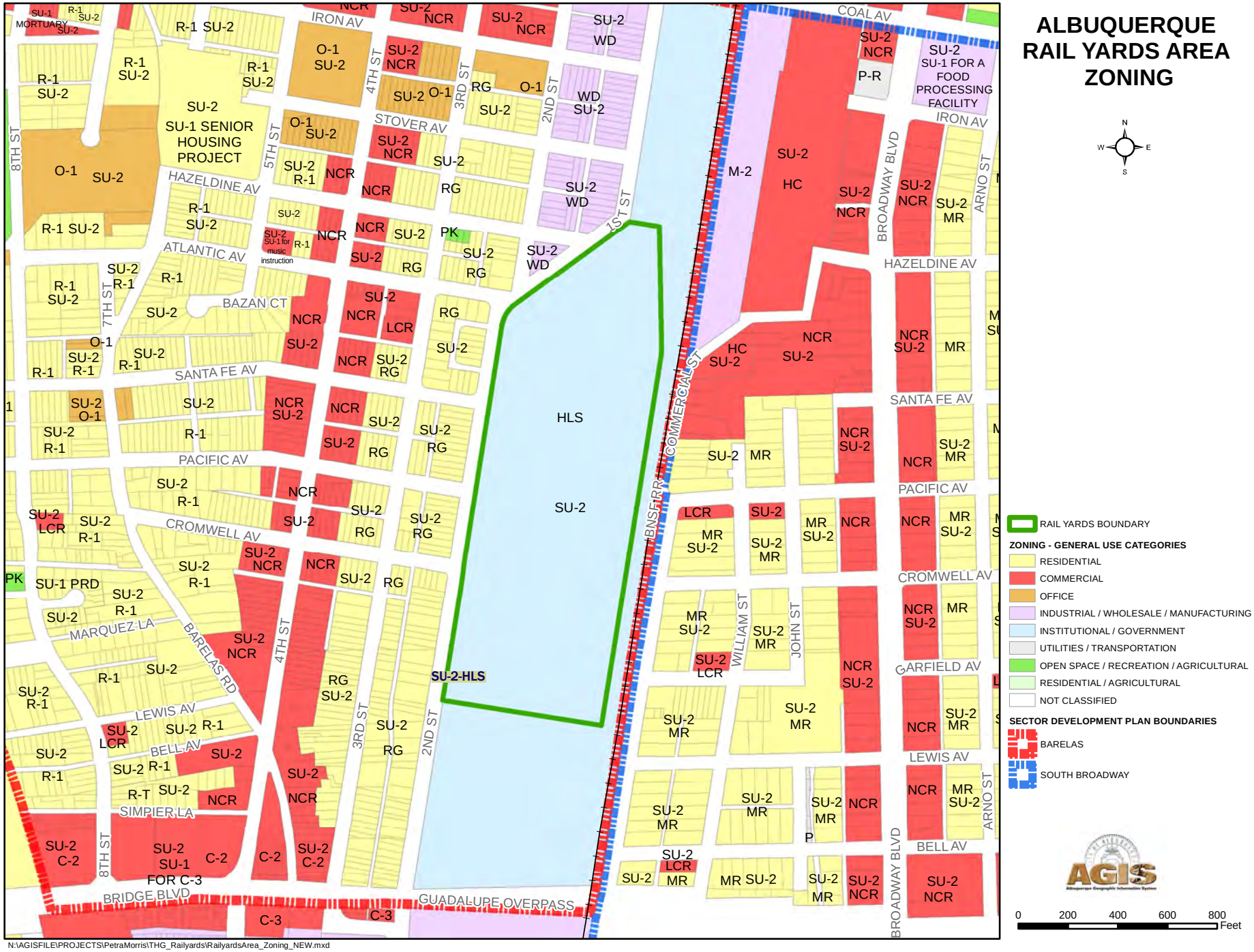
The Barelas SDP prioritized the redevelopment of the Rail Yards property as a key economic development strategy. Participants in the planning process for the Barelas SDP identified the importance of creating employment opportunities for local residents and mitigating any negative impact redevelopment might have. They also valued the historic nature of the existing structures and felt that redevelopment should recognize and celebrate the history of the railroad. Participants felt that efforts towards business retention and recruitment should be directed towards businesses that meet local shopping needs.

The Barelas SDP requires that the entire Rail Yards property be controlled by a MDP that is reviewed by the Rail Yards Advisory Board and the Environmental Planning Commission and adopted by the City Council before a building permit is issued for any portion of the site. Exceptions include a museum project (WHEELS Museum) and a City-sponsored housing project, both of which may receive approvals and building permits prior to the adoption of the MDP, and subject to an agreement with the City that has been approved by City Council being in place. The Barelas SDP requires that the MDP include appropriate buffering between residential and non-residential uses on the site.

The SU-2/HLS zone for the Rail Yards property (as established by the Barelas SDP) is based on the C-2 Community Commercial zone, IP Industrial Park zone, and R-3 Residential zone of the Comprehensive City Zoning Code. As stated in the Barelas SDP, "The zone provides for flexibility of land use and design within the property and for compatible orientation to the neighborhood and buffering between the locomotive shops complex and residential areas." This unique zoning supports the community's desire to provide high-quality employment in the neighborhood, increase the neighborhood's residential population, and provide for goods and services that meet the needs of neighborhood residents and businesses.

The SU-2/HLS zone provides the development approval process for the Master Development Plan as well as a process for amendments and deviations to the Master Development Plan.

Permissive and conditional uses of the three zoning categories are allowed by the Barelas SDP, with exceptions. Uses permissive in the C-2 Community Commercial zone are allowed. Uses permissive in the IP Industrial Park zone are allowed, with the exception of an air separation plant. Permissive uses also include iron or steel foundry or fabrication plan, forging, rolling, or heavyweight casting, as regulated by the MDP and provided that such use is buffered from abutting residential zones or residential uses, as approved in the MDP. Conditional uses of the C-2 Community Commercial and R-3 Residential zones are allowed, with the requirement that they are shown on the MDP along with their relationship to other uses on the site. Prohibited uses include emergency shelter, retail sale of alcoholic drinks for consumption off-premise, off-premise signs, sale of gasoline and liquefied petroleum gas, adult amusement establishment and adult store, cold storage plant, and pawn shop.



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Figure 4: Rail Yards, Surrounding Parcelization & Zoning

The SU-2/HLS zone also provides site development regulations including height, setbacks, off-street parking, landscaping, and orientation.

4.3 Historic Preservation

Because the site is owned by a public entity, the City of Albuquerque, and contains historic resources, the site plan and its implementation will involve numerous preservation compliance regulations. These regulations are spelled out in federal law in the National Historic Preservation Act of 1966 (as amended) and in state law in the New Mexico Historic and Prehistoric Sites Preservation Act (Section 18-8-7, NMSA 1978), also known as Section 7 review. Some of these steps as well as other preservation measures are already underway.

- Federal regulations apply when federal money is being used for a project or if a federal permit, license or approval is required. In such a case, the law requires that a Section 106 Review (referring to the section number of the National Historic Preservation Act) be conducted by the State Historic Preservation Officer to determine if there is any adverse effect to the historic resources. To date, the only federal dollars involved with this project were used for Environmental Protection Agency (EPA) efforts at the site. It has been determined by the Advisory Council on Historic Preservation (ACHP), the agency responsible for making such determinations, that the EPA involvement was not sufficient to trigger a Section 106 review of the project. In the future, if federal funds are used, including housing assistance, the question of a Section 106 Review may become applicable.

- Federal tax credits are available for rehabilitation projects on registered historic properties that meet the Secretary of the Interior's Standards for Treatment of Historic Properties and pass the rigorous reviews of the Internal Revenue Service as well as the National Park Service.

- State preservation regulations spelled out in the New Mexico Historic and Prehistoric Sites Act do apply to public funds, including funds spent by municipalities in the State. Projects that are publicly funded require a Section 7 review by the New Mexico State Historic Preservation Office (SHPO). If the entire site is nominated for listing on the State Register of Cultural Properties, then Section 7 review will be required of this project because of the City of Albuquerque's ownership of the site and its intended participation on the project going forward.

- Before the site is officially listed on the National Register, buildings and structures (site features) may be subject to Section 106 review by being determined to be eligible for the National Register. The City of Albuquerque has prepared Historic Cultural Properties Inventory (HCPI) forms describing each building on the site as well as some of the non-building features. The HCPI forms will be a reference for the Determination of Eligibility (DOE) to be executed by the City of Albuquerque and SHPO in mutual consultation.

- To date, there have been five meetings with SHPO staff, attended by City of Albuquerque and Samitaur staff and consultants regarding the project. SHPO staff have visited the site numerous times, and staff members have worked with the City of Albuquerque to prepare inventory forms of the cultural resources.

- As the plans develop, and as the projects begin on the site, SHPO staff will be reviewing draft plans and designs and commenting on proposals. Attendance of SHPO's staff to ongoing planning meetings has been on an advisory role up to now. If and when the City lists the site to the State Register, SHPO's role will further involve official compliance review under applicable preservation laws (Federal Section 106 and State Section 7).

- State tax credits are available for approved renovations to historic properties on the State Register.

- The Firehouse on the site has been named a City of Albuquerque Landmark and has its own set of guidelines for treatment developed by the City's Landmarks and Urban Conservation Commission (LUCC). Any changes to the Firehouse will require prior approval by the LUCC in addition to other permitting processes.

- The City of Albuquerque has prepared a nomination for the site to the State and National Register of Historic Places. Nominations are reviewed by the SHPO, then placed before the New Mexico Cultural Properties Review Commission (CPRC), the citizens' advisory board for the New Mexico Historic Preservation Division (HPD). The CPRC can make a decision to place the site on the State Register of Cultural Properties. If the CPRC votes to move the nomination forward to the national level, it will be sent to Washington, DC, for review by the keeper of the National Register. This process can take from 12 to 18 months.

- In addition to the HCPI, Samitaur hired internationally recognized conservation architect, Giora Solar to review the historic resources and to provide a report recommending preservation measures. Refer to Section 10 for an overview of these recommendations.

- With several preservation issues and agencies involved with bringing the Rail Yards back to life, it will be important to bring all the interested preservation agencies together to map out a "compliance plan." This plan would coordinate which agency will review what parts of the plan and subsequent designs of individual components. For example, it is not efficient for both the SHPO's office and the City's Archaeologist to review archaeological issues. If the City's LUCC decides to landmark the site or components (in addition to the Fire House), it will be important to coordinate the LUCC's guidelines for development with the opinions of the SHPO to uncover any differences of opinion early in the process, since both agencies would have review authority. A good "compliance plan" will describe when reviews need to happen and by whom. It should determine times for review, so that the development schedule can proceed in a timely manner.

4.4 Memorandum of Understanding (MOU)

As part of the "compliance path," it is the intention of the Master Developer to memorialize the preservation recommendations included in the Master Development Plan in a Memorandum of Understanding (MOU) between the City of Albuquerque, the New Mexico SHPO, the ACHP and with others as interested parties (such as the Master Developer). In order to move forward with development, there needs to be agreement on not just the specifics of what is to be preserved, but additional agreement on how that preservation effort will be conducted. This agreement is necessary in order for the Master Developer to be able to recruit economic development projects for the site and have a level of comfort about the preservation stipulations that will be placed on a given development on the site. The development of the MOU cannot be negotiated with the SHPO until such time as the historic resources are officially listed on the State Register of Cultural Properties.

There is good precedent for this process in the MOU for the Santa Fe Railyard redevelopment. That MOU was between the City of Santa Fe, City of Santa Fe Archaelogical Review Committee, Santa Fe Railyard Community Corporation, New Mexico Cultural Properties Review Committee, SHPO, and the Trust for Public Land, dated 2004. In this case the site was already listed on the National and State Registers. It covers such issues as:

- Surveying all the properties (this has already been done for the Albuquerque Rail Yards)

- Listing of the Historic properties and their character defining features

- Treatment of Archaeological Sites

- Description of continued railroad operations (not applicable to Albuquerque Rail Yards)
- Design guidelines
- Process of approval for potential designs
- Recording requirements of any buildings to be removed

While the Albuquerque Rail Yards project is much more complex, the Santa Fe MOU and other MOU examples should be researched to come up with a document that codifies the consensus of the involved parties and guides the development process procedures in far greater detail than is appropriate at the master planning phase. This agreement should ride with the land as a component of leases and building rights documents to ensure that future parties abide by its requirements.

4.5 Maintenance Program Agreement

While it is not a legal regulation, many multi-building historic sites make use of a Maintenance Program Agreement with the SHPO. Program Agreements are management agreements between the National Park Service, represented by the SHPO, and the management of a specific site with cultural resources such as a National Park, a military base, or a university that uses federal funds on some buildings. A Maintenance Program Agreement, among other objectives, establishes the process by which cultural resources will be maintained and repaired. The National Historic Preservation Act requires that federal agencies and agencies receiving federal funds avoid adverse effects on cultural resources. This requirement is in place not just for initial changes to a site, but over time as repairs and maintenance are needed.

A good Maintenance Program Agreement eliminates the need for site managers to consult the SHPO on every treatment of a cultural resource for repair and maintenance. It accomplishes this objective by describing common maintenance and treatment situations that are expected to occur and describes the treatments that will be used.

The Albuquerque Rail Yards is being developed by a private Master Developer. At this time, Section 106 requirements are not applicable because no federal undertaking is currently involved. However, future development might occur that includes federal funding. In addition, future tenants or owners of building rights may wish to pursue Federal Tax Credits.

The City of Albuquerque and the Master Developer have a vested interest in having the cultural resources of the site repaired and maintained in keeping with the Secretary of the Interior's Standards. Otherwise, through the years, with many different property managers making repairs and doing maintenance, the historical integrity of the property could diminish.

It is advised that the Master Developer and the SHPO develop a Maintenance Program Agreement for the Rail Yards that can serve as a guide for repair and maintenance by the Master Developer and form the basis of covenant agreements with future tenants, building rights of owners and developers.

A few examples of the types of repairs and maintenance items that should be included in a Maintenance Program Agreement include proper materials for replacement of broken glass, maintenance of metal surfaces, cleaning of brick and concrete surfaces, etc. The list can best be developed by referring to the character defining features that are described in the National/State Register Nomination. Examples of this type of program agreement can be found on line on the NPS website.

4.6 Archaeological Regulations

Because the site is larger than 5 acres, the City of Albuquerque's Archaeological Ordinance will apply. The City's Archaeologist will be participating in that process. The activities that could potentially disturb archaeological sites are more likely to occur when actual construction begins. Because buildings cover much of the site, the major concern will be the digging of utility lines. Artifacts of the historic period, especially those that might contribute to the history of the Rail Road years would be valuable additions to the story the site has to tell. Deeper excavations might also reveal pre-historic artifacts as with many sites in the Rio Grande Valley.

In addition to the City's Ordinance, certain State of New Mexico regulations may apply as well. Based on the above, it is likely that an Archaeological Report will be required. The New Mexico State Archaeologist has been in multiple meetings concerning the Rail Yards project to date and will work with the City's Archaeologist to determine what level of survey(s) are appropriate and how they might be efficiently conducted to satisfy both agencies. The New Mexico State Archaeologist commented that since the site was originally in the flood plain, it would be surprising to find much prehistoric information. However, the historic periods, such as what the area was like prior to the Rail Yards would be of archaeological interest.



Rail Yards circa~1925 with original Powerhouse on left, William Walton Photographer, Property of the Albuquerque Museum, Milner Studio


Rio Grande.
Volcanoes

GOALS & POLICIES 5

5.0 GOALS AND POLICIES

Introduction

The following guiding principles, goals, and policies are adapted from three primary sources: the City's Request for Proposals for a Master Developer, the Master Plan Agreement between the City and the Master Developer, and public input received during the Master Planning process. This section of the Master Plan is intended to serve as an overarching framework to guide the redevelopment of the Rail Yards over many decades.

Development decisions and City approvals shall consider whether a given proposal is consistent with and substantially furthers the goals and policies contained in this section, in addition to being consistent with other applicable plans, such as the Comprehensive Plan and relevant Rank 3 plans.

It is important to note that there will necessarily remain many unknowns with respect to the details of future redevelopment of the Rail Yards, such as specific tenants/user groups, types of employment opportunities, types of housing units, and particular cultural and other public amenities. However, the intent of these principles, goals and policies will be to serve as criteria against which to judge the appropriateness, feasibility and potential efficacy of all such future development activities, beginning with design and continuing through construction, operation and maintenance.

Guiding Principle #1: Job Generation, Economic Development & Economic Viability

The Rail Yards, once an economic pillar for the community, is envisioned to become a hub of economic activity again. The Master Plan provides a framework for renewed economic and business success for the Project Area and is sufficiently flexible to accommodate a variety of potential future economic uses and opportunities. The Plan also provides opportunities to generate quality, living-wage and high-wage jobs and programs that will link those jobs with community residents.

The Master Plan recognizes that the success of the Project Area is directly related to the financial feasibility of the overall mix of uses that is ultimately developed. Implementation of the Master Plan should prioritize uses that are financially self-sustaining and, preferably, revenue-generating and minimize the City's exposure to and obligation for direct costs and subsidies.

Goal 1.1 - The Rail Yards will again become a major employment center: The Rail Yards site will function again as a major skilled employment generator that utilizes the local workforce.

Policy 1.1.1 - Focus resources and attention toward successful Rail Yards redevelopment: The City and the Master Developer, through direct investment, policies, legislation and formation of public-private partnerships, will maximize the potential for successful redevelopment at the Rail Yards site and the surrounding area.

Policy 1.1.2 - Support local business development: The City and the Master developer will support the start-up and growth of businesses that enhance the Rail Yards site and complement businesses in the surrounding communities. This may include,

for example, the establishment of a small business incubator or second stage incubator on the site.

Goal 1.2 - The Rail Yards site will support a mix of employment opportunities: The range of employers at the Rail Yards will collectively provide a mix of living and high-wage employment, as well as opportunities for on-the-job training.

Policy 1.2.1 - Support educational/workforce training: The City and the Master Developer will work with local and state organizations to provide opportunities for "educational training" at the Rail Yards.

Policy 1.2.2 - Institute "First Source" hiring: The City, Master Developer and future businesses at the Rail Yards will encourage the practice of first-source hiring, through legislation, contracting requirements and/or incentives to hire local employees, and incentives to hire graduates of New Mexico institutions.

Goal 1.3 - Economically viable development at the Rail Yards site will create new revenue streams for the City and the State: Redevelopment will focus on developing economically viable businesses and projects that also generate new streams of revenue for the City and State.

Policy 1.3.1- Develop a financing and implementation package: The City and Master Developer will design a financing and implementation package that incentivizes business development yet minimizes costs, obligations and exposure for the City during both construction and operation of the Rail Yards redevelopment.

Policy 1.3.2- Demonstrate financial sustainability: All uses, features and projects will demonstrate that they are either financially self-sustaining or have sufficient public financial assistance to provide for their construction, development and/or sustained operation and maintenance.

Guiding Principle #2: Housing

Integrating housing into the Rail Yards redevelopment of the site is important for three reasons:

1. *To ensure the availability of affordable housing in the community;*
2. *To minimize possible displacement of people as a result of redevelopment; and*
3. *To create a true mixed-use environment and a constant presence on the site, which will increase the overall vibrancy and safety of the site.*

The Master Plan supports construction of the required Workforce Housing and includes opportunities for additional affordable and market rate housing. The development of housing at the Rail Yards will be coordinated with the City's ongoing efforts to rehabilitate existing housing in the surrounding neighborhoods.

Goal 2.1 - A mix of housing types will be available at the Rail Yards: A range of housing types, such as apartments and/or live/work units, that are either market rate and/or Workforce Housing could be developed in order to meet market demand for mixed-use, urban dwellings and to help create an active and vibrant site.

Policy 2.1.1 - Meet the Workforce Housing requirement: A minimum of thirty (30) units of Workforce Housing, as defined by City Ordinance 30-2006 (§14-9-1 et. seq., ROA 1994), will be constructed at the Rail Yards to help activate the site and create an appropriate transition between the site and the residential neighborhood across 2nd Street.

Policy 2.1.2 - Locate housing along 2nd Street, to become part of the neighborhood: Housing is considered an appropriate land use along the 2nd St. frontage of the site in order to relate to development within the Barelas neighborhood.

Policy 2.1.3 - Assure complementary housing scale and design: New housing construction will respect and relate to the scale of development on the west side of 2nd St., for example by stepping up building heights towards the interior of the site or, where stepbacks cannot be achieved, through other means of ensuring compatible articulation and scale.

Policy 2.1.4 - Phase development activities to minimize adverse impacts: The Master schedule and the schedule for individual development projects should be designed to minimize impacts on commercial and residential tenants over the entire build-out time frame.

Goal 2.2 - Housing at the Rail Yards will be a part of an integrated housing redevelopment and rehabilitation strategy for the larger community: Housing development at the Rail Yards will be undertaken in concert with efforts by the City to encourage rehabilitation of existing properties and redevelopment of vacant (infill) properties in the surrounding neighborhoods, creating a vibrant, mixed-income community.

Policy 2.2.1 - Encourage infill workforce housing development on existing vacant lots and support housing rehabilitation programs: Infill workforce housing projects and rehabilitation prgrams within the Barelas and South Broadway neighborhoods should be a priority of the City in order to strengthen existing communities, minimize displacement, and integrate with the redevelopment of the Rail Yards.

Policy 2.2.2 - Develop balanced design standards: Design standards will be developed that reflect the context of the Rail Yard and the adjacent neighborhoods.

Guiding Principle #3: Community Connectivity

The Master Plan complements all adopted plans for surrounding areas, including the Barelas, South Broadway and San Jose neighborhoods. The Plan supports current and planned economic activity in the Downtown area and encourages connections with existing attractions in the area—such as the Albuquerque Zoo and BioPark, Tingley Beach, Rio Grande State Park, the National Hispanic Cultural Center, the South Broadway Cultural Center, Old Town and its museums, Downtown Albuquerque and its amenities, the Alvarado Transportation Center, the Historic 4th Street Corridor, local sports venues, the Albuquerque Sunport, and others. The Plan reinforces the City's transit goals and objectives, and supports pedestrian, bicycle, auto and public transportation to and from the site.

Goal 3.1 - The public will feel welcome at the Rail Yards. Public gathering places will be available and accessible for the wider community to enjoy.

Policy 3.1.1 - Create public spaces: Public spaces will be integrated into the design of all phases of redevelopment of the site.

Policy 3.1.2 Maintain a balance between private and public access to the Machine Shop: While businesses at the Rail Yards will require access and privacy, public access to some portion of the Machine Shop shall be maintained. The design of uses at the Machine Shop will strive to maintain this balance. Access to the Machine Shop, as the largest and most significant of the remaining structures, is a high priority; however, where possible, some degree

of public access to other historic structures should be provided. (See also Policy 6.2.1)

Goal 3.2 - The Rail Yards will become part of a well-connected network of attractive community and regional facilities that doesn't require an automobile for access: The Rail Yards will be integrated with and will complement other attractions in the area (see Guiding Principle #3 above), and will be easily accessible by public transportation, bicycling, and walking. The need to drive and park an automobile at the site should be minimized.

Policy 3.2.1 - Support a "Park Once" strategy: Design features and facilities will support a comprehensive "Park Once" strategy, modeled after the Downtown 2025 Sector Development Plan's strategy and promoting walking, bicycling and public transportation to and from locations within the greater Rail Yards area.

Policy 3.2.1.1 - Provide transportation options: Improved public and alternative transportation options to the site, including bicycle, pedestrian, and transit facilities will be accommodated. Within the site, connectivity will be provided.

Policy 3.2.1.2 - Use the Rail Line to provide site access: Connections to the Alvarado Transportation Center and the Central Business District via the main rail line will be encouraged. A future Rail Line stop at the site will be accommodated, should one be approved in the future.

Policy 3.2.2 - Limit on-site parking: A limited amount of on-site parking will be provided, and over-parking of the site will be discouraged. At full project build-out, visible surface parking will not be allowed except for limited loading facilities and to meet accessibility requirements. Subterranean parking will be encouraged to accommodate full project build-out parking requirements. Interim surface parking is acceptable prior to full project build-out, provided it is designed to meet Architectural standards contained in the Master Plan.

Policy 3.2.3 - Balance commercial and residential on-street parking needs: On-street parking in appropriate locations contributes to a vibrant urban environment. Commercial and residential parking needs must both be accommodated, which can be accomplished through a mix of metered and permit parking.

Policy 3.2.3.1 - Maximize the availability of and direct visitors to on-street parking along non-residential frontages by providing metered parking and wayfinding: The City should install meters, signage and other measures as appropriate on adjacent and nearby streets.

Policy 3.2.3.2 - Implement on-street residential permit parking for surrounding neighborhoods, as needed: Since on-site parking will be limited, the City and Master Developer should work closely with adjacent neighborhoods to monitor the impacts of off-site parking as the redevelopment of the site progresses and determine if/when a Neighborhood Permit Parking program should be implemented. The standard requirement for license plate survey which determines if the threshold of on-street parking spaces used by persons who are not residents of the area has been met shall be waived.

Policy 3.2.4 – Maintain direct rail access onto the site: Future development must preserve the functionality of the historic turntable and maintain rail access thereto.

Goal 3.3 - There will be safe, well-designed physical connections between the Rail Yards site and adjacent neighborhoods: Direct, safe and convenient pedestrian and bicycle connections to and from the Barelas and South Broadway neighborhoods will be constructed,

and physical barriers to the site, excluding the active BNSF railroad tracks, will be removed, visibly and physically connecting the site with both neighborhoods.

Policy 3.3.1 - Remove barriers to the site: Perimeter fencing will be removed when site security can be ensured. The edges of the site should remain open and accessible, and fencing, gates and other similar barriers should be employed only when other security measures are not feasible. (See also Policy 4.1.4)

Policy 3.3.2 - Create welcoming, pleasing edges: Development at the edges of the site should be oriented towards the surrounding neighborhoods. The street edges along 2nd and 1st Streets on the west, and along the railroad tracks on the east, should maintain sight lines to historic structures and should help invite people to visit the site. Developing landscaped spaces to define the edges of the site is appropriate.

Policy 3.3.3 - Create pedestrian and bicycle connections to the Barelas and South Broadway neighborhoods: Direct pedestrian and bicycle connections between the site and adjacent neighborhoods will be created that are safe, feasible, connect to natural points of entry, and encourage people to visit, work and shop at the site. While the design and planning of facilities that serve the site, such as 2nd St. and the Guadalupe Overpass, are outside the purview of the Plan, the City should prioritize and undertake infrastructure improvements that will support redevelopment of the site and maximize opportunities for creating safe, comfortable non-vehicular acccess to the site.

Guiding Principle #4: Land Uses

The Master Plan encourages new development on the Rail Yards site that balances new economic and design approaches with protection of the integrity and history of the Rail Yards and the surrounding residential communities. The Plan complements the goals in other adopted plans that cover or affect the Rail Yards site.

Goal 4.1 - The Rail Yards will become a model for mixed-use development. The Rail Yards is looked to as a model for reclaiming historic properties, stimulating significant job growth and economic development, accommodating commercial and residential tenants, providing needed services and venues to surrounding neighborhoods and the entire city, and creating a "Live/Work/Learn/Trade/Play" environment.

Policy 4.1.1 - Celebrate and emphasize the historic railroad function of the site: Cultural and employment uses that relate to rail operations, such as transportation museums or compatible and suitable rail equipment maintenance facilities, are encouraged and shall not be precluded. Proximity to the operative Turntable and BNSF switching yard make the south end of the Rail Yards site particularly suitable for such uses.

Policy 4.1.2 –Create a balanced development such that diverse users can utilize the site to the highest degree with minimum impact to one another. Potentially incompatible uses will be organized and buffered in order to achieve compatibility.

Policy 4.1.3 - Demonstrate appropriate transition and scale: New development should demonstrate sensitivity in scale and transition as the historic gateway to the Barelas and South Broadway neighborhoods.

Policy 4.1.4 - Integrate new development and uses with adjacent established development: New development, both buildings and site features, should relate in orientation, massing, and use to established development adjacent to the site. Uses that create impacts to surrounding residential neighborhoods will be appropriately buffered. Since existing development on the west side of 2nd Street is predominantly residential in character, the 2nd Street frontage of the site is considered an appropriate location for housing, mixed with retail where appropriate to serve as an area of transition between the site and the neighborhood to the west.

Goal 4.2 - Rail Yards redevelopment will catalyze redevelopment opportunities in surrounding areas: Stronger connections to the Barelas, South Broadway, and Downtown areas will be built through redevelopment of undeveloped sites that abut or are adjacent to the Rail Yards.

Policy 4.2.1 - Acquire additional land for complementary redevelopment opportunities: The City and Master Developer will consider acquiring additional sites, as appropriate, that abut or are adjacent to the Rail Yards to support area-wide redevelopment activities consistent with and supportive of the aims of the Master Plan, including residential as described in Guiding Principle #2 . If additional sites are acquired, the Master Plan may be amended to incorporate any additional site or sites.

Policy 4.2.2 - Foster partnerships for complementary redevelopment opportunities: This will be pursued through public, private and/or public-private partnerships to maximize development opportunities on sites that abut or are adjacent to the Rail Yards and that support the aims of the Master Plan.

Goal 4.3 - The Master Plan will respect and maintain consistency with the goals in other adopted Plans: New development will remain consistent with the goals, policies, and recommendations in the Albuquerque/Bernalillo County Comprehensive Plan, the Barelas Sector Development Plan (2008), the South Broadway Sector Development Plan (1986), and the Downtown 2025 Plan (2000, 2014).

Guiding Principle #5: Architecture and Historic Rehabilitation

The Master Plan recognizes the significant value of the existing Rail Yards historic resources, i.e. buildings and structures, to a local, state and national audience. The fundamental approach to site development will be to maintain the "integrity" of the site as a whole, with individual structures being rehabilitated and adaptively re-used for modern and functional purposes, in consultation with the New Mexico SHPO.

Goal 5.1 – The Rail Yards site will be developed as a unified whole with an integrated "sense of place" and unified vision: The original Rail Yards development was characterized by a spirit of innovation and state-of-the-art technical advances in engineering and building practices. The redevelopment will strive to rekindle this spirit both in terms of the adaptive re-use of the existing buildings and the design of new infill development.

Policy 5.1.1 – Follow design standards outlined within the Master Plan in order to create a unified visual language: Visitors, tenants and inhabitants arriving to the Rail Yards should recognize a cohesive, integrated and high quality environment.

Policy 5.1.2 – Architectural design will integrate 20th and 21st century sensibility: The City and the Master Developer will encourage innovative architectural design - for redevelopment, new structures and landscaping - that fits within the historic context of the site.

Policy 5.1.3 – Encourage innovative and progressive building technologies: Redevelopment of the Rail Yards should be characterized by a commitment to the future as well as the past and should build on the lineage of technological advancement embodied by the existing structures.

Goal 5.2 – Historic resources at the Rail Yards will be rehabilitated and adaptively reused: The hierarchy in the relative significance of the existing structures will inform a tiered approach to rehabilitation.

Policy 5.2.1 – Rehabilitate and/or adaptively re-use historic resources: The historic resources represented by the Rail Yards should be rehabilitated and adaptively reused in plans for economic ventures, cultural amenities and physical changes to the site.

Policy 5.2.2 – Preserve the architectural history of the Rail Yards site for future generations: The site's integral role in the development of the surrounding neighborhoods and Albuquerque as a city is important to communicate. Visitors should have access to the Rail Yards in order to view the historic structures, understand their original relationship and functionality, and experience early 20th century industrial architecture and its remarkable innovations.

Policy 5.2.3 – Honor the human history of the Rail Yards site through the creation of an on-site memorial: The Rail Yards redevelopment will recount the history of the Rail Yards and its relationship to Albuquerque and New Mexico in a number of ways, including, but not limited to, an oral history project, a transportation museum, and an on-site memorial to the workers with special acknowledgement of those who were injured or killed there. The memorial to the workers will be located at or near the entrance from each neighborhood.

Goal 5.3 – Infill development will complement existing structures: New construction, or new additions to or surrounding existing structures shall be designed in consultation with the New Mexico SHPO.

Policy 5.3.1 – Ensure compatibility of infill development with existing site features in terms of size, scale, proportion and massing: New structures should maintain a low building profile in order to maximize sight lines to and from the most significant historic structures.

Goal 5.4 –The Rail Yards site will become a model for sustainable redevelopment: The Rail Yards redevelopment will strive to incorporate innovative technologies that assist with site resource management and utilization.

Policy 5.4.1 – Incorporate sustainable design features in the redevelopment: Concepts such as natural resource conservation, on-site energy generation, utility co-generation, and sustainable material selection should be exployed.

Policy 5.4.2 – Design, build and maintain regionally appropriate landscaping and open areas: Landscape design will be a major component in creating an inviting environment and connection to the wider community. Landscape design should reflect an understanding of the local climate, and landscaping materials should be selected based on their ability to withstand low water conditions and direct sun exposure. Developed open space areas should be shaded from the summer sun with trees and/or permanent or temporary shade structures. Rainwater collection and on-site reuse are strongly encouraged.

Policy 5.4.3 – Design the Rail Yards site to exceed all current City of Albuquerque adopted Energy Code standards and should be USGBC LEED equivalent rated where possible. The historic buildings will be rehabilitated to incorporate the energy standards to the extent feasible through creative design.

Policy 5.4.4 – Employ a "Rehabilitation First" strategy in programming and design: Rehabilitation of existing structures uses the embodied energy within the structure and is strongly encouraged.

Guiding Principle #6: Art and Culture

The Master Plan encourages opportunities for promoting the art, history and culture of the site, the community and the region. The Plan sets aside space for a museum that celebrates the history of transportation, particularly rail transportation. Commercial and residential tenants, local community members, and visitors from near and far will be attracted by heightened aesthetics, comfortable, quality amenities, and a unique cultural vibrancy.

Goal 6.1 - The Rail Yards will be home to a quality museum: Redevelopment will include a venue for a museum that will be operated by an organization that is committed to promoting the importance of the site and its history.

Policy 6.1.1 - Create a facility that conveys the history of the site: The site will include a museum or other appropriate facility that informs visitors of the history of the Rail Yards and the site's relationship to the history of Albuquerque.

Goal 6.2 - The Rail Yards will foster a vibrant set of on-site cultural events and facilities: The City and the Master Developer will promote opportunities for other cultural events and facilities that support the overall redevelopment goals and, in particular, help honor the value and history of the site, the community and the region.

Policy 6.2.1 - Locate cultural facilities strategically: The preferred location to develop cultural facilities is the southern end of the site, focused around the Turntable and rebuilding the Roundhouse. However, cultural uses may also be developed on other portions of the site, including within historic buildings. For example, as the most prominent and iconic remaining structure on the site, the Machine Shop or a portion thereof could be considered an appropriate location for a publicly-accessible use, such as a cultural facility. (See also Policy 3.1.2)

Policy 6.2.2 - Develop standards for community use of public spaces: The use of public spaces by the community will be encouraged but regulated. Standards for cultural and community events, art installation and performance, and farmers' markets, mobile restaurants and other groups will be developed as required.



Bridge Crane in action circa~1943, Jack Delano Photographer, Farm Security Administration/Office of war information photograph collection (Library of Congress)


Looking
west down
90' bay.

DEVELOPMENT REGULATIONS 6

6.0 DEVELOPMENT REGULATIONS

Intent

The regulations contained in this Section supplement the underlying zoning requirements of the SU-2/Historic Locomotive Shops (HLS) zone in the Barelas Sector Development Plan. All development shall comply with both the requirements of the SU-2/HLS zone and the regulations contained herein. In the event of a conflict between this Plan and the SU-2/HLS zone, the requirements of the SU-2/HLS zone shall prevail.

6.1 Site Development Plan for Subdivision

The regulatory standards contained in this section are summarized in Tableau 7, Site Development Plan for Subdivision, located on the following pages. The Site Development Plan for Subdivision contains the base subdivision and establishes parameters for future site development, supplementing the underlying zoning regulations contained in the SU-2/HLS zone of the Barelas Sector Development Plan. All amendments to and deviations from the Site Development Plan for Subdivision and the Master Development Plan shall be per the SU-2/HLS zone in the Barelas Sector Development Plan.

6.2 Development Standards Matrix Components

(refer to Figure 5 on facing page)
The following subsections define and/or describe each of the elements contained in the Development Standards Matrix.

6.2.1 Parcel Area

The Site Development Plan for Subdivision (Tableau 1) divides the Rail Yards site into 10 parcels. The Parcel Area is defined as a measurement of the existing surface land area of the underlying parcel. This measurement serves as the basis for calculating the allowable buildable area of each parcel, as capped by the Floor Area Ratio limit for each parcel (see Section 6.2.2). The total of all parcel areas equals 27.3 acres.

6.2.2 Floor Area Ratio (FAR)

The Floor Area Ratio (FAR) controls the density of development by establishing a maximum allowable building area for each parcel. The FAR limit varies by parcel in order to reflect and preserve the spatial hierarchy of the existing historic buildings.

The Master Plan establishes an average site density of only FAR 0.74.

6.2.3 Existing Historic Resources to be preserved

Existing Historic Resources are the structures and features that are present on each parcel that shall be preserved.

6.2.4 Existing Floor Area

Existing Floor Area is defined as the total amount of existing building area currently under roof contained on the subject parcel.

6.2.5 Approved Uses by Parcel

The SU-2/ HLS zone allows for a wide range of permissive uses, including multifamily residential (R- 3), office (O-1), community commercial such as retail, restaurants, services (C-2), and light industrial (I-P). Creating a vibrant and successful mixed-use community on the Rail Yards site will, in large measure, depend on the type, location and organization of such uses on the site.

The Master Plan establishes Approved Uses by Parcel that are based on a thorough analysis of project goals, site context, and community input.

Uses that are not listed under Approved Uses by Parcel but that are permissive in the underlying SU-2/HLS zoning shall be applied for through the SU-2/HLS zone's Master Development Plan amendment process.

Parcel ID #	Parcel Area (sf)	Proposed Floor Area Ratio (FAR)	Existing Historic Resources to be Preserved	Existing Floor Area (sf)	Approved Uses	Height Limits (ft)	Street Facing Setbacks (ft)	Parking (min. stall qnty)
1	342,143	0.65	Turntable, Babbit Shop, Welding Shop, South Washroom	20,829	Cultural Facilities; e.g. Museum, Performing Arts and Railroad-related facilities. Parking	67	N/A	551
2	77,264	1.00	Platform	N/A	Work-Force Housing	45	10	90
3	63,582	0.50	Storehouse	18,900	Cultural Facilities; e.g. Museum. Live Work	45	10	N/A
4	68,080	0.10	Bridge Crane	N/A	Public Commons Area; Accessory Retail, Education, Public Art Venue, Railroad-related Facilities	45	10	N/A
5	142,747	1.50	Machine Shop	165,000	Business/Professional Uses; Office, Light Manufacturing, Training/Education, Accessory Cultural Uses, Railroad-related Facilities	67	N/A	N/A
6	79,893	N/A	Transfer Table	N/A	Public Commons Area	67	10	N/A
7	30,298	1.50	Blacksmith Shop	24,867	Business/Professional Uses; Office; Light Manufucturing; Training/ Education; Cultural Facilities; Retail	67	N/A	N/A
8	89,989	1.50	Boiler Shop, Tank Shop, Flue Shop	85,542	Business/Professional Uses; Office, Light Manufacturing, Training/Education	67	N/A	N/A
9	98,216	0.25	Firehouse, Waste & Paint Rooms	5,520	Public Commons Area/Commercial; Retail, Restaurant, Service, Housing	30	10	N/A
10	197,390	0.65	N/A	N/A	Business/Professional Uses; Office, Light Manufacturing, Training/Education. Parking	30	10	355
TOTALS	**1,189,602**	**0.74**		**320,658**				**996**
	27.31	**acres**						

Figure 5: Development Standards Matrix

GENERAL NOTES

1. REFER TO MASTER DEVELOPMENT PLAN (MDP) DOCUMENT FOR ADDITIONAL PROJECT INFORMATION.
2. REFER TO "TABLEAU 8: PRELIMINARY PHASE PARKING PLAN" IN MDP FOR PHASE I PARKING LAYOUT.
3. PRIMARY RECOMMENDED USE FOR EACH PARCEL AREA IS LISTED ON THIS PLAN, REFER TO TABLE FOR ALL RECOMMENDED USES.
4. SECURE BICYCLE STORAGE FACILITY TO BE INCLUDED ON-SITE, FINAL LOCATION TO BE DETERMINED.
5. REFER TO LANDSCAPE MASTER PLAN FOR LANDSCAPE LOCATION AND PLANT TYPES.
6. REFER TO PARCEL/LAND USE TABULATION FOR ALL ADDITIONAL PARCEL INFORMATION.
7. REFER TO "FIGURE 23, PHASING PLAN DIAGRAM" IN MDP FOR PHASING.
8. INITIAL PHASES INCLUDE THE RENOVATION AND ADAPTIVE REUSE OF EXISTING HISTORIC BUILDINGS AND DEVELOPMENT OF COMMON AREA.
9. INTERMEDIATE PHASES INCLUDE RETAIL, HOUSING AND CULTURAL FACILITIES ALONG SECOND STREET AND TRANSFER TABLE PUBLIC COMMONS AREA.
10. FINAL PHASES INCLUDE SUBTERRANEAN PARKING STRUCTURES AND NEW DEVELOPMENT ABOVE.
11. PUBLIC VEHICULAR ACCESS IS LIMITED TO DESIGNATED PARKING AREAS WITH THE EXCEPTION OF LIMITED LOADING FACILITIES AND ADA ACCESS.
12. APPROVAL OF SITE PLAN FOR BUILDING PERMIT IS BY THE DRB. NA PUBLIC HEARING AND PUBLIC NOTIFICATION IS REQUIRED. SEE IMPLEMENTATION AND PHASING SECTIONS OF THE MDP.
13. FUTURE DEVELOPMENT SHALL COMPLY WITH THE DEVELOPMENT REGULATIONS AND DESIGN GUIDELINES INCLUDED IN THE MDP DOCUMENT.
14. UNLESS NOTED OTHERWISE, ALL EXISTING RAILROAD TRACKS TO BE REMOVED.

KEY NOTES

1. LOCATION FOR SINGLE-STORY INFILL BUILDING AND PARKING. BUILDING FOOTPRINT TO BE DETERMINED.
2. FUTURE BUILDING AT ORIGINAL ROUNDHOUSE LOCATION AND WITHIN THE ORIGINAL VOLUMETRIC ENVELOPE.
3. LOCATION OF ORIGINAL SMOKESTACK. REBUILT SMOKESTACK MONUMENT MAXIMUM HEIGHT 230FT.
4. RAILROAD PEDESTRIAN CROSSING; AT-GRADE OR BRIDGE.
5. PERIMETER ARCHITECTURAL DESIGN FEATURE TO RESTRICT FREE FLOW OF PEDESTRIANS TO SPECIFIC ROUTES AT PROPERTY LINE WITH BNSF.
6. PUBLIC COMMONS SPACE; "FIREHOUSE PLAZA."
7. PUBLIC COMMONS SPACE; "QUADRANGLE."
8. PUBLIC COMMONS SPACE; "MACHINE SHOP PLAZA."
9. EXISTING RAILROAD TRACKS TO BE PRESERVED, TYPICAL WHERE SHOWN.
10. OPTIONAL FUTURE BUS STOP.
11. PUBLIC ACCESS THROUGH MACHINE SHOP TO THE TRANSPER TABLE. LOCATION/PATHWAY TO BE DETERMINED.
12. DIRECT PEDESTRIAN CONNECTIONS SHALL BE PROVIDED BETWEEN BUILDINGS, PARKING AREAS AND THE PUBLIC RIGHT OF WAY (R.O.W.)
13. PUBLIC SIDEWALK.
14. OPTIONAL FUTURE RAIL STOP.
15. LINE OF EXISTING FIRE ROAD TO BE "PRESENTED" WHERE SHOWN.
16. STREET PARKING.
17. OPTIONAL VEHICULAR SITE ACCESS ACROSS VACATED PORTION OF 1ST STREET.

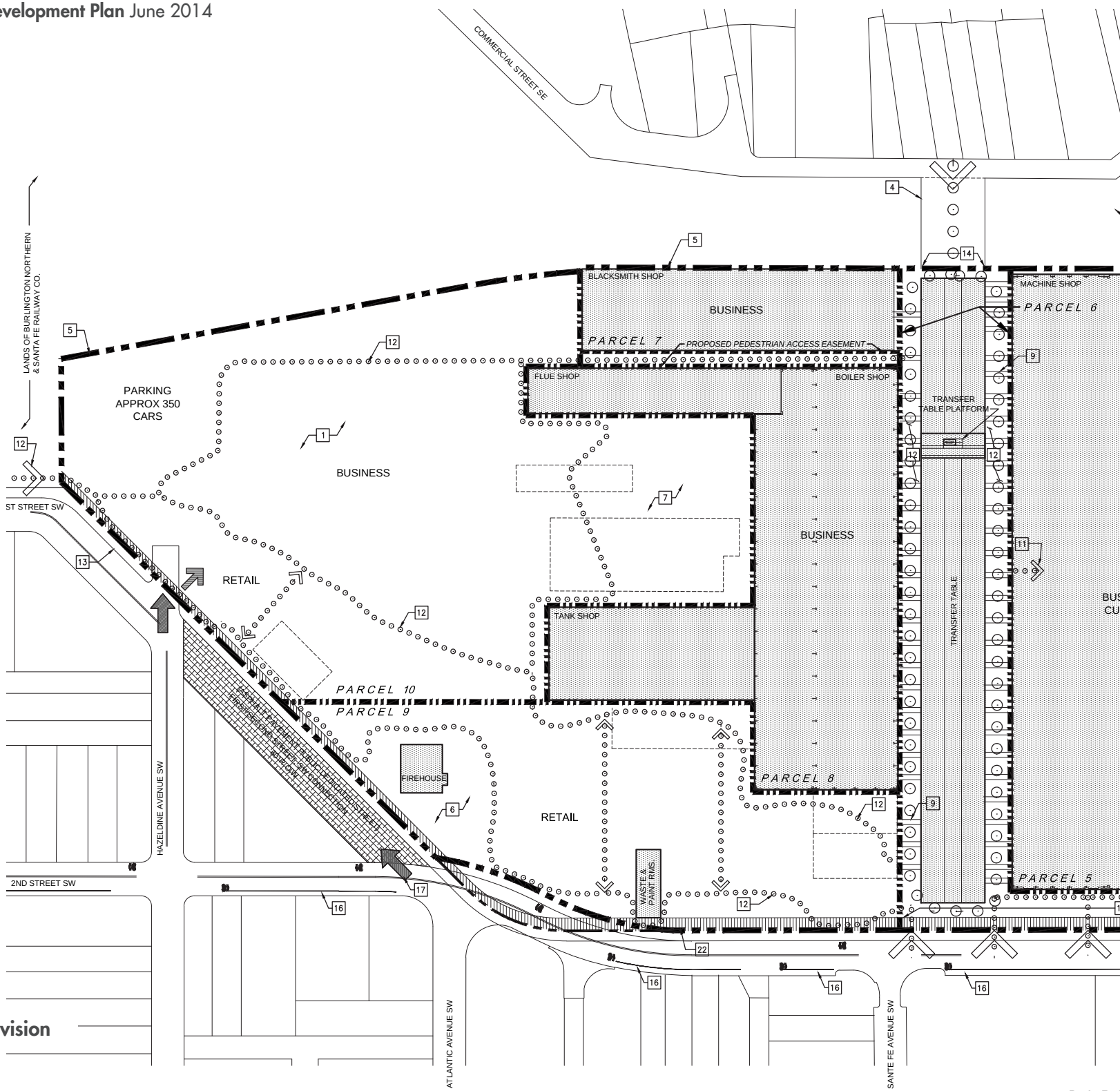
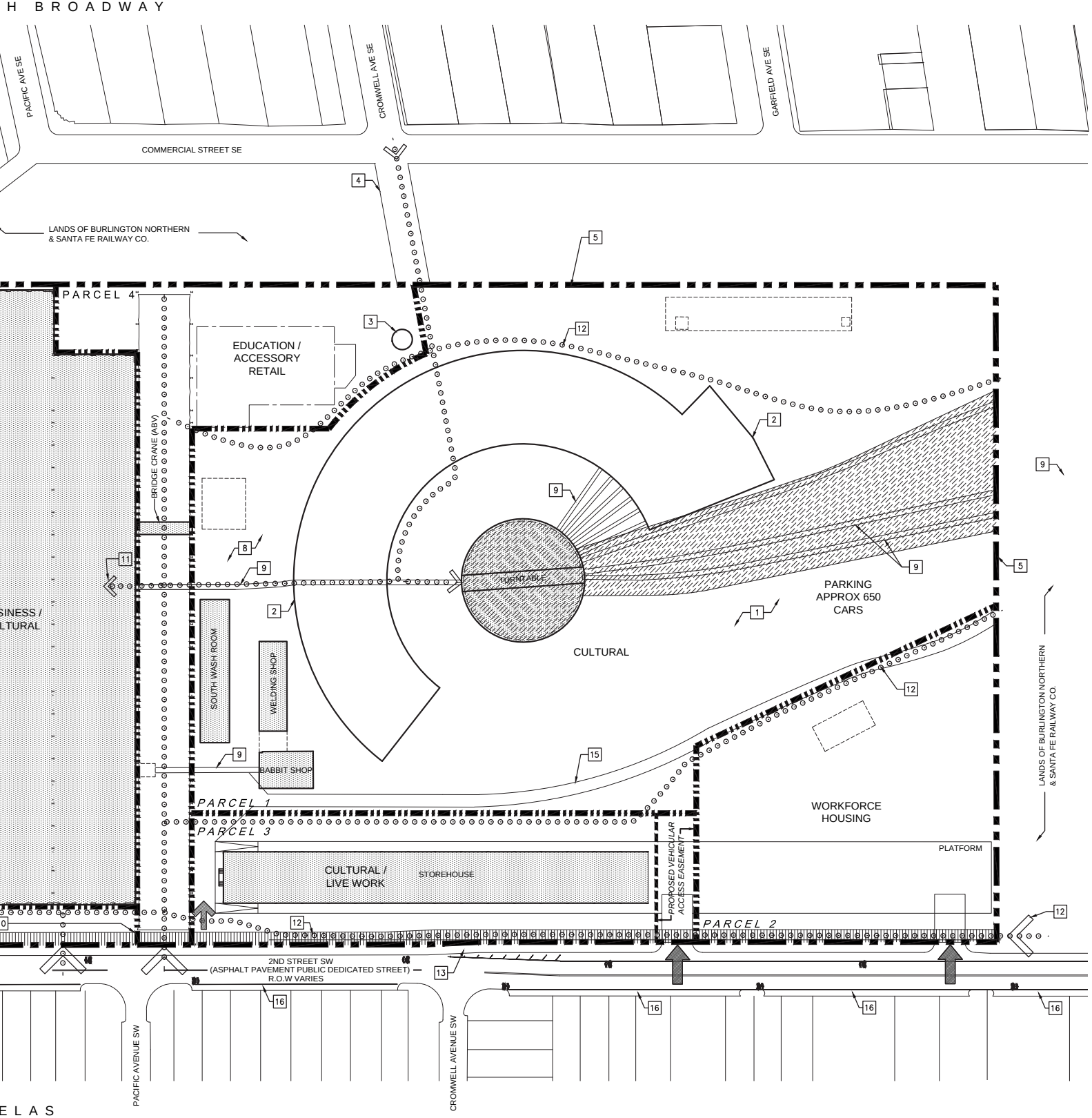


TABLEAU 1: Site Plan for Subdivision



SITE PLAN FOR SUBDIVISION

EXISTING ZONING: SU2–HLS

ALLOWABLE USES: IP, C–2, R–3 WITH LIMITED EXCEPTIONS PER BARELAS SDP.

SUBJECT PLANS: BARELAS SDP

LEGAL DESCRIPTION:
TRACKS "A" OF THE TRACT A, A.T.&S.F. RAILWAY COMPANY MACHINE SHOP, ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO, AS THE SAME IS SHOWN AND DESIGNATED ON THE PLAN FILED IN THE OFFICE OF THE COUNRY CLERK OF BERNALILLO COUNTY, NEW MEXICO ON JANUARY 25, 1996 AS DOCUMENT 1996008744, RECORDED IN VOL 96C, FOLIO 44, RECORDS OF BERNALILLO COUNTY, NEW MEXICO.

LEGEND

- PROPERTY LINE
- PARCEL LINE
- EASEMENT LINE
- EXISTING BUILDINGS TO BE PRESERVED
- EXISTING BUILDINGS TO BE REMOVED
- BUILDING PREVIOUSLY REMOVED
- TURNTABLE ACCESS EASEMENT, #2000118838, RECORDED 11/30/2000, BK–A12, PG 8383
- PUBLIC SERVICE COMPANY OF NEW MEXICO EASEMENT (ELECTRIC), #2011070980, RECORDED 08/03/2011, ROWT#18799
- VACATED PORTION OF 1ST STREET CONVEYED TO THE CITY OF ALBUQUERQUE METROPOLITAN REDEVELOPMENT AGENCY
- PEDESTRIAN CIRCULATION (PRIMARY, 20FT MIN.)
- PEDESTRIAN CIRCULATION (SECONDARY, 10FT MIN.)
- PARKING ACCESS
- PRELIMINARY ACCESS TO PARKING
- BICYCLE PATH

THE SITE PLAN FOR SUBDIVISION IS THE BASE SUBDIVISION: ALL FUTURE PLATTING ACTIONS ARE BASED ON THIS, AND SHALL BE PER THE SUBDIVISION ORDINANCE. ALL AMENDMENTS AND DEVIATIONS TO THE SITE DEVELOPMENT PLAN FOR SUBDIVISION AND THE MASTER PLAN SHALL BE PER THE SU–2/HLS ZONE IN THE BARELAS SECTOR DEVELOPMENT PLAN.

6.2.6 Building Heights

Building Heights shall not exceed those standards contained in the SU-2/HLS zone in the Barelas Sector Development Plan.

The Master Plan establishes a more restrictive building height limit for certain parcels in order to comport with neighboring residential uses and to maintain the necessary visual hierarchy between the existing historic buildings, which shall remain the dominant visual elements of the site, and new infill development.

6.2.7 Setbacks

Setbacks shall be per the SU-2/HLS zone in the Barelas Sector Development Plan.

6.2.8 Off-Street Parking

Off-Street Parking shall be provided per the SU-2/HLS zone in the Barelas Sector Development Plan.

While this Plan proposes underground parking at final buildout, surface parking may be provided in the interim in order to comply with the off-street parking requirements. Interim surface parking shall be provided through shared access or parking agreements. Parking shall be provided for the site as a whole rather than on a parcel-by-parcel basis.

6.3 Access

a. Pedestrian/Emergency Access: Parcels 4 and 6 shall retain permanent public access easements and shall operate as internal paths in order to provide pedestrian and emergency access to parcels with limited or no access. As such, Parcels 4 and 6 have been designated to be used as Public Commons Areas with limited Approved Uses.
b. Pedestrian Circulation: see Site Development Plan for Subdivision.
c. Vehicular Access: see Site Development Plan for Subdivision.

6.4 Historic Features

The Master Plan requires the preservation and adaptive re-use of most of the buildings on the site. The Secretary of the Interior's Standards for Rehabilitation and associated Guidelines for Rehabilitation shall provide the criteria for preservation and adaptive reuse treatment.

6.4.1 Development Parameters

A Memorandum of Understanding (MOU) with the State Historic Preservation Office will provide detailed parameters for rehabilitation of the existing buildings and structures and new developments on the site regarding the redevelopment of the locomotive shops complex. The City, the master developer, along with other development parties that the City deems appropriate, shall be a part of the negotiation process as they will have a vested interested in the outcome of the negotiations. Applications for a Site Development Plan for Building Permit shall be in accordance with the MOU.

6.4.2 Historic Preservation and Adaptive Reuse

The following buildings and structures of cultural significance, shown on the Site Development Plan for Subdivision, shall be PRESERVED:

- Fire Station
- Machine Shop
- Bridge Crane
- Boiler Shop
- Tank Shop/ Tender Repair Shop
- Flue Shop
- Blacksmith Shop
- Storehouse with Platform
- Transfer Table
- Turntable
- Train Tracks: Rail tracks are extensive throughout the site and

contribute to the site's historic character. Not all tracks will be suitable for preservation. Tracks to be preserved shall be determined on a parcel by parcel basis with recommendations from City historic preservation planners provided at application for Site Plan for Building Permit.

- Babbit Shop
- Welding Shop
- South Washroom
- Waste & Paint Room

6.4.3 Buildings Proposed to be Removed

There are buildings and structures on the site that may present obstacles to redevelopment. The following buildings may be removed, but are not required to be removed. If no viable alternative to demolition can be identified, appropriate mitigation shall be identified by the State Historic Preservation Officer.

- Canopy
- Cab Paint Shop/later converted to CWE Shops office
- Pattern House
- North Washroom
- Motor Car Garage
- Power House
- Sheet Metal House
- Fire Runway
- Water Reservoir

6.4.4 Interpretative Reconstruction of Iconic Historic Buildings and Structures (the Roundhouse and Smokestack)

The Site Development Plan for Subdivision includes footprints of the former Roundhouse building and Smokestack in the location where these important historic resources once stood, resources that have been demolished in previous decades. These historic resources will be represented on the site with new development that may be a modern interpretation of the historic structure. Any reconstruction will be on the original footprint, per the Site Development Plan for Subdivision and will have approximately the same volume; however, reconstruction of historic structures is symbolic and shall not be identical to the original structure.

6.5 Signs

a. Unless otherwise provided for herein, signage standards shall be per the SU-2/HLS zone in the Barelas Sector Development Plan.
b. Memorials, historic markers or other interpretive signs, and traditional and digital murals dedicated to non-commercial purposes shall not be considered signage. Memorials shall be located at or near the primary entry from the Barelas and South Broadway neighborhoods.
c. Self-illuminated signage shall be prohibited except for retail uses; such signage shall be limited to 20 square feet. Signage containing moving graphics shall be prohibited for all use categories.
d. Free standing "monument" signs shall be permitted at locations of vehicular access to the site and adjacent to the proposed transit plaza. A free standing sign shall also be permitted at the proposed location of the future rail station should one be approved. Such signage shall be used to identify the tenants of the Rail Yards site.
e. A maximum of (2) building-mounted signs per building are allowed. Such building-mounted signs shall not exceed 1 percent of the facade area to which they are applied and in no case shall exceed 100 square feet in size.
f. Localized entry signage (e.g., blade signage, door signage) used to identify tenant entrances shall not be considered a building-mounted sign for purposes of the above calculation and shall be permitted provided they are less than 2 square feet and located within 5 feet of the building entrance.

PLANT PALETTE*

SYMBOL	SCIENTIFIC NAME COMMON NAME	SIZE	INSTALLED SIZE MATURE SIZE	WATER USE
	TREES			
	DECIDUOUS SHADE AND STREET TREES:			
	ACER GLABRUM ROCKY MOUNTAIN MAPLE	2" B&B	8' HT. X 4' SPR. 30' HT. X 25' SPR.	MED
	FRAXINUS SPECIES ASH	2" B&B	14' HT. X 6' SPR. 35' HT. X 30' SPR.	MED+
	PLATANUS WRIGHTII ARIZONA SYCAMORE	2" B&B	12' HT. X 6' SPR. 50' HT. X 50' SPR.	MED
	TILIA CORDATA LITTLELEAF LINDEN	2" B&B	14' HT X 5' SPR. 40' HT. X 30' SPR.	LOW
	ULMUS AMERICANA 'NEW HARMONY' NEW HARMONY AMERICAN ELM	2" B&B	12' HT. X 6' SPR. 50' HT. X 60' SPR	MED
	DECIDUOUS FLOWERING ORNAMENTAL TREES:			
	CHILOPSIS LINEARIS DESERT WILLOW	2" B&B	8' HT. X 6' SPR. 20' HT. X 25' SPR.	MED
	FORESTERIA NEOMEXICANA NEW MEXICO OLIVE	15 GAL.	8' HT. X 4' SPR. 15' HT. X 15' SPR.	MED
	PYRUS SPECIES FLOWERING PEAR	2" B&B	8' HT. X 6' SPR. 40' HT. X 35' SPR.	MED
	ROBINIA AMBIGUA 'PURPLE ROBE' PURPLE ROBE LOCUST	2" B&B	16' HT. X 6' SPR. 30' HT. X 30' SPR.	MED
	VITEX AGNUS-CASTUS CHASTE TREE	15 GAL.	8' HT. X 6' SPR. 20' HT. X 20' SPR.	MED
	EVERGREEN TREES:			
	PINUS NIGRA AUSTRIAN PINE	24" BOX	8' MIN. HT. 35' HT. X 25' SPR.	MED
	PINUS SYLVESTRIS SCOTCH PINE	24" BOX	8' MIN. HT. 45' HT. X 25' SPR.	MED
	SHRUBS & GROUNDCOVERS			
	DECIDUOUS SHRUBS & GROUNDCOVERS:			
	ARTEMISIA & SALVIA SPECIES SAGE	1 GAL.	3' O.C. 1'-2' HT. X 2-3' SPR.	LOW+
	BUDDLEIA DAVIDII NANHOENSIS DWARF BUTTERFLY BUSH	1 GAL.	4' O.C. 4' HT. X 3' SPR.	MED
	CHRYSOTHAMNUS NAUSEOSUS CHAMISA	1 GAL.	5' O.C. 4' HT. X 4' SPR.	MED
	JASMINUM NUDIFLORUM WINTER JASMINE	1 GAL.	12' O.C. 4' HT. X 12' SPR.	LOW+
	LEUCOPHYLLUM FRUTESCENS 'COMPACTUM' COMPACT CENIZA	1 GAL.	4 O.C. 3' HT. X 3' SPR.	LOW+
	POTENTILLA SPECIES SHRUBBY AND SPRING CINQUEFOILS	1 GAL.	4' O.C. 3' HT. X 3' SPR.	MED
	PRUNUS BESSEYI WESTERN SAND CHERRY	1 GAL.	4' O.C. 3' HT. X 3' SPR.	MED
	PSOROTHAMNUS SCOPARIUS BROOM DALEA	1 GAL.	6' O.C. 3' HT. X 5' SPR.	LOW
	RHUS TRILOBATA SPECIES SUMAC	1 GAL.	5' O.C. 2'-4' HT. X 4' SPR.	LOW

COMMON NAME	SIZE	MATURE SIZE	USE
EVERGREEN SHRUBS & GROUNDCOVERS:			
AGAVE SPECIES AGAVE	5 GAL.	2' O.C. 1' HT. X 2' SPR.	LOW+
ARTEMISIA SPECIES SAGE	5 GAL.	4' O.C. 4' HT. X 4' SPR.	LOW
ATRIPLEX CANESCENS FOURWING SALTBUSH	1 GAL.	5' O.C. 4' HT. X 6' SPR.	LOW
CERATOSTIGMA PLUMBAGINOIDES BLUE LEADWORT	1 GAL.	2' O.C. 1' HT. X 3' SPR.	MED
EPHEDRA SPECIES JOINT FIR	1 GAL.	5' O.C. 4' HT. X 4' SPR.	LOW
FALLUGIA PARADOXA APACHE PLUME	5 GAL.	5' O.C. 4' HT. X 4' SPR.	LOW
LAVANDULA SPECIES LAVENDER	1 GAL.	4' O.C. 3' HT. X 3' SPR.	MED
OPUNTIA ELLISIANA SPINELESS PRICKLY PEAR	1 GAL.	4' O.C. 3' HT. X 3' SPR.	LOW
PINUS MUGO MUGO PINE	5 GAL.	5' O.C. 4' HT. X 4' SPR.	LOW
ROSMARINUS OFFICINALS ROSEMARY	1 GAL.	5' O.C. 3' HT. X 4' SPR.	LOW+
SANTOLINA SPECIES SANTOLINA	1 GAL.	4' O.C. 2' HT. X 3' SPR.	LOW
SEDUM SPECIES STONECROP	1 GAL.	3' O.C. 2' HT. X 2' SPR.	LOW
YUCCA SPECIES YUCCA	2 GAL.	5' O.C. 1'-4' HT. X 1'-4' SPR.	LOW
GRASSES			
SYNTHETIC TURF			
A VARIETY OF SYNTHETIC OPTIONS ARE AVAILABLE. SYNTHETIC PRODUCTS SHOULD BE CHOSEN FOR DURABILITY AND MINIMAL MAINTENANCE.			
TRADITIONAL TURF SPECIES:			
POA HYBRID - (OR SIMILAR THAT REQUIRES LESS IRRIGATION, HAS DEEPER ROOTS AND AGGRESSIVE RHIZOMES, PLUS EXCELLENT HEAT TOLERANCE; E.G. REVEILLE - GARDNER TURFGRASS)			
NATIVE TURF AND GENERAL USE SPECIES:			
BOUTELOUA SPECIES GRAMA	SEED	4 LBS. PLS/1000 SF VARIES	LOW+
BUCHLOE DACTYLOIDES BUFFALO GRASS	SEED	4 LBS. PLS/1000 SF VARIES	LOW+
HILARIA JAMESII GALLETA	1 GAL.	1' O.C. 14" HT. X 14" SPR.	LOW
ORNAMENTAL SPECIES:			
ARISTIDA LONGISETA PURPLE THREAWN	1 GAL.	2' O.C. 18" HT. X 18" SPR.	LOW
CALAMAGROSTIS X ACUTIFLORA 'KARL FOERSTER' KARL FOERSTER GRASS	1 GAL.	3' O.C. 3' HT. X 2' SPR.	MED
MUHLENBERGIA CAPILLARIES 'REGAL MIST' REGAL MIST MUHLY GRASS	1 GAL.	5' O.C. 3' HT. X 4' SPR.	MED
PENNISETUM SPECIES FOUNTAIN GRASS	1 GAL.	3' O.C. 2' HT. X 2' SPR.	LOW

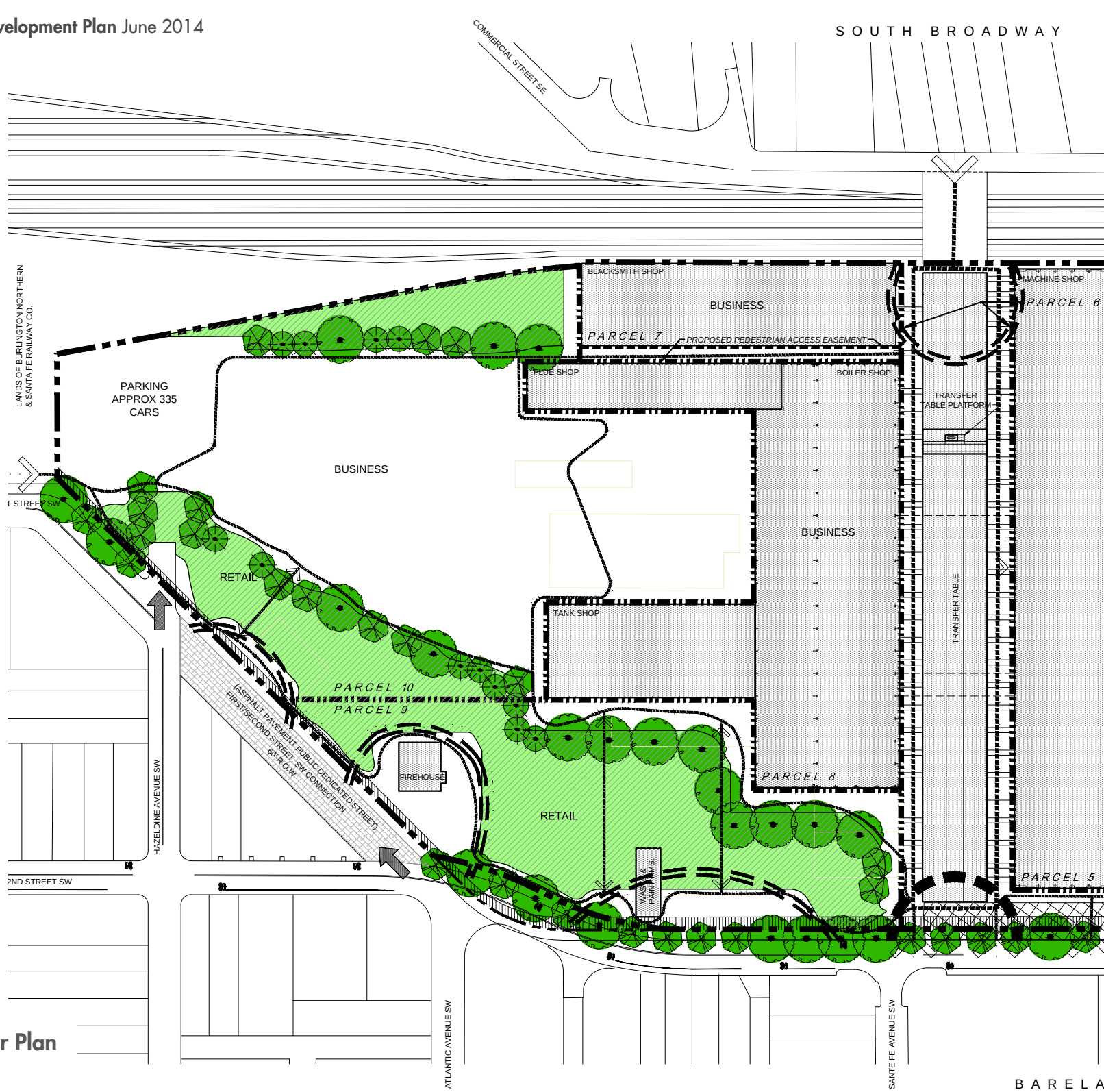
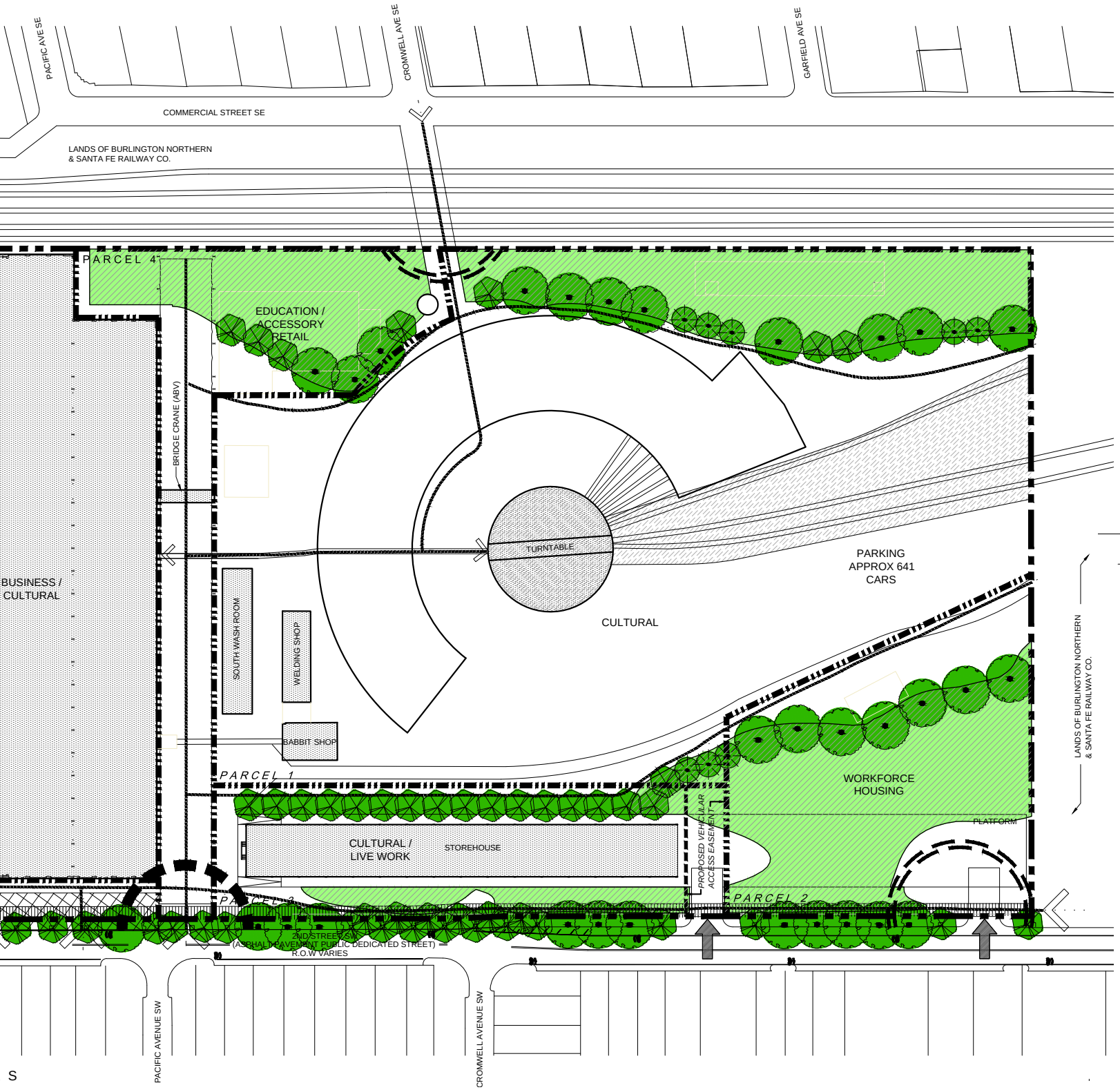


Tableau 2: Landscape Master Plan



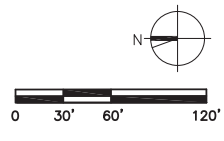
PLANT PALETTE*

SCIENTIFIC NAME COMMON NAME	SIZE	INSTALLED SIZE MATURE SIZE	WATER USE
VINES			
DECIDUOUS VINES:			
CAMPSIS RADICANS TRUMPET VINE	1 GAL.	5' O.C. 40' SPR.	MED
PARTHENOCISSUS INSERTA WOODBINE	1 GAL.	5' O.C. 40' SPR.	MED
EVERGREEN VINES:			
HEDERA HELIX ENGLISH IVY	1 GAL.	3' O.C. 5' SPR.	MED
LONICERA SPECIES HONEYSUCKLE	1 GAL.	4' O.C. 12' SPR.	MED
FLOWERS			
ANNUALS:			
GAILLARDIA PULCHELLA BLANKETFLOWER	1 GAL.	4' O.C. 3' HT. X 3' SPR.	LOW
MIRABILIS SPECIES FOUR O'CLOCK	1 GAL.	5' O.C. 2'-4' HT. X 4'-5' SPR.	LOW+
SALVIA SPECIES SAGE	1 GAL.	3' O.C. 3' HT. X 3' SPR.	MED
TAGETES SPECIES MARIGOLD	1 GAL.	2' O.C. 18" HT. X 18" SPR.	MED
VIOLA WITTROCKIANA PANSY	1 GAL.	1' O.C. 1' HT. X 1' SPR.	LOW
PERENNIALS:			
ALCEA ROSEA HOLLYHOCK	1 GAL.	2' O.C. 4' HT. X 1' SPR.	MED
CENTRANTHUS RUBER RED VALERIAN	1 GAL.	4' O.C. 3' HT. X 3' SPR.	MED
HEMEROCALLIS HYBRIDS DAYLILLIES	1 GAL.	3' O.C. 2' HT. X 3' SPR.	MED
LINIUM PERENNE BLUE FLAX	1 GAL.	2' O.C. 18" HT. X 18" SPR.	MED
PENSTEMON SPP. PENSTEMON	1 GAL.	2 O.C. 2' HT. X 2' SPR.	LOW
RATIBIDA COLUMNIFERA CONEFLOWER	1 GAL.	3' O.C. 30" HT. X 30" SPR.	LOW+
BULBS:			
CROCUS SPP. CROCUS	BULBS	1' O.C. 6" HT. X 6" SPR.	MED
NARCISSUS SPP. DAFFODIL	BULBS	3' O.C. 1' HT. X 1' SPR.	MED
MUSCARI ARMENIACUM. GRAPE HYACINTH	BULBS	6" O.C. 6" HT. X 6" SPR.	LOW+
TULIPA SPP. TULIP	BULBS	1' O.C. 1' HT. X 8" SPR.	MED

*NOTE: THIS PLANT PALETTE SERVES AS A SUGGESTED LIST AND OTHERS MAY BE ADDED TO FIT PARTICULAR SITUATIONS AS NECESSARY.

LEGEND

SYMBOL	DESCRIPTION
	PROPERTY LINE
	PARCEL LINE
	EASEMENT LINE
	EXISTING BLDG TO BE PRESERVED
	PERIMETER LANDSCAPE
	TRANSIT PLAZA
	PEDESTRIAN CIRCULATION (PRIMARY, 20 FT. MIN.)
	PEDESTRIAN CIRCULATION (SECONDARY, 10 FT. MIN.)
	CONNECTORS - PRIMARY
	NEIGHBORHOOD / SITE INTERFACE
	PARKING GARAGE ACCESS



6.6 Landscape and Site Amenities

The site shall be landscaped with a drought tolerant and indigenous palette with plants and trees placed for both beauty and shade. Refer to Tableau 5 – Landscape Master Plan – for Plant Palette.

6.6.1 Amenities

Site furnishings and other amenities, shall be of a consistent, high-quality, vandal-resistant design. They shall be constructed of durable materials, such as concrete and powder coated steel. A consistent color palette that is in keeping with the overall design intent of the Rail Yards shall be utilized for finishes.

6.6.2 Seating

Seating areas shall be provided for individual use and for larger group activities to ensure pedestrian comfort throughout the site. Seating opportunities shall be placed periodically along all pedestrian routes.

Permanent seating opportunities shall be placed throughout the Rail Yards, and mobile, temporary seating shall be made available for special events. Seating areas may include benches, chairs, picnic tables, and seat walls. Seating opportunities may be provided at the edges of pedestrian traffic flow. Picnic tables should be provided in numerous locations across the site for those who wish to enjoy a meal outdoors. Seating options should be shaded by trees and/or architectural features whenever possible to provide a comfortable resting space.

6.6.3 Trash and Recycling Receptacles

Trash and recycling receptacles shall be located in all areas where people gather to attend events, enjoy refreshments, wait for transportation, or picnic. They shall also be located in close proximity to area entries and exits to allow people to easily dispose of waste when traversing various site activities. Receptacles shall be placed in areas that are easily accessible to maintenance vehicles in order to provide for ease of maintenance.

6.6.4 Drinking Fountains

Drinking fountains shall be located in high pedestrian use areas and near picnic tables. They shall use freeze-proof valves and be located in areas easily accessible to maintenance vehicles.

6.6.5 Bicycle Racks

Bicycle racks shall be provided near vehicular parking areas as well as at various perimeter site locations. They should not be installed within the interior of the site in order to deter bike riding through the site; rather, they should be installed in locations that encourage dismount before entering pedestrian spaces. Signage shall be installed to identify bike dismount areas as needed.

6.6.6 Bollards

Permanent bollards shall be located as necessary to prohibit vehicular traffic in restricted areas. Removable bollards shall be provided where access for fire trucks and other emergency vehicles is required. Bollards shall be of a unified design throughout the site.

6.6.7 Information Kiosks

a. Design: The design of information kiosks shall be in keeping with the industrial architectural style of the Rail Yards. Appropriate kiosk design shall ensure articulation of all kiosk faces, rather than placing all emphasis on the front elevation of the structure and neglecting or downgrading the aesthetic appeal of the side and rear elevations.
b. Content: Information kiosks shall include permanent signage and maps of the site identifying locations of major activity centers. They shall also be able to accommodate temporary signage for special events.
c. Location: Kiosks will be located in high pedestrian use areas, such as the Transit Plaza.

6.6.8 Water Conservation Ordinance Compliance

The site's approved plant palette predominantly consists of plants with low to medium water use requirements, thereby minimizing irrigation needs while ensuring viability of the plants. An evapotranspiration management controller shall be included in the design of the irrigation system to monitor weather conditions so that optimum moisture balance is achieved and the possibility of overwatering is reduced.

6.6.9 Irrigation System

The site's irrigation system shall adhere to the City's Water Conservation Landscaping and Water Waste Ordinance with the following additions:

a. A fully automated irrigation system with a centralized computer control system shall be used to irrigate tree, shrub, and groundcover planting areas. Satellite controllers shall be placed at strategic areas and linked back to the central system. Mainline piping shall be provided according to standard City specifications. Gate valves shall be located at strategic points along the mainline piping system to allow for isolation of sections for maintenance reasons. The irrigation system shall be metered separately, based on ownership.

b. The irrigation system shall be designed to isolate plant material according to solar exposure and shall be set up by plant zones according to water requirements. Trees, shrubs, and groundcovers shall be grouped on the same valve. Turf areas shall be irrigated with pop-up rotary sprinklers with high efficiency nozzles. Temporary irrigation shall be provided for all areas receiving native seed mixes until established. The design for shrub and groundcover areas shall consider alternative irrigation technology (e.g. bubblers, drip irrigation, dry water packs, water harvesting opportunities, etc.). The irrigation system for all cool season turf grass shall be designed to apply 2/3-inch of water in a 7-hour window.

c. Where non-potable water sources are utilized, irrigation components shall be selected for use with non-potable water sources to allow for connection to the captured stormwater systems. Backflow prevention shall be provided per City code to protect the potable water system from the irrigation system.

d. Irrigation components shall be readily available for maintenance and/or replacement.

e. The entire irrigation system shall be designed to maximize water efficiency.

6.6.10 Clear Sight Requirements

Landscape plans included with individual projects shall ensure that landscaping and signage shall not interfere with clear sight requirements at points of site ingress/egress. Therefore, signs, walls, trees, and shrubbery between 3 and 8 feet tall (as measured from the gutter pan) shall not be permitted within the clear sight triangle area and shall be noted as such on the landscape plan.

6.6.11 PNM Coordination

As part of the landscape plan included with individual projects, coordination is necessary with PNM's New Service Delivery Department regarding proposed tree location and height, sign location and height, and lighting height in order to ensure sufficient safety clearances. Landscape screening shall be designed to allow for access to electric utilities. Clearance of ten feet in front and at least five feet on the remaining three sides surrounding all ground-mounted equipment is required for safe operation, maintenance, and repair purposes.

6.6.12 Maintenance Responsibility

Maintenance of the landscaping and irrigation system, including those areas within the public Rights-Of-Way shall be the responsibility of the owner. In addition, maintenance of landscape elements such as benches, litter receptacles, signs, etc., within the common areas shall be the responsibility of the owner. Long term maintenance of landscaping shall be consistent across the site. This shall be accomplished in the easements, covenants, and restrictions to be entered into by the parties in connection with platting.

6.7 Utilities/Screening

To ensure the overall aesthetic quality of the Rail Yards site, all new electric and telecommunication distribution lines within the site shall be placed underground. All permanent utilities serving irrigation systems and other landscape site amenities shall be placed below grade. Transformers, utility pads, HVAC equipment, and telephone boxes shall be screened from public view.

6.8 Exterior Lighting

Exterior lighting standards for the Rail Yards site are as follows:

a. Placement of fixtures and poles shall conform to State and local safety and illumination requirements. All exterior installations shall be provided with ground-fault interruption circuits.
b. Shielded-source light fixtures shall be used to prevent light spillage and avoid unnecessary glare or reflection on adjacent properties, buildings, or roadways in compliance with the City's Comprehensive Zoning Code.
c. Lighting shall be integrated into the design of the buildings and structures; light sources shall be concealed to the degree possible and fixtures shall not become focal elements of the project.
d. Lighting shall be chosen based on energy efficiency, low level of maintenance and availability of parts, should replacement or repairs be required.

6.9 IMPLEMENTATION

6.9.1 Required Studies

The redevelopment and platting of the Rail Yards is anticipated to occur over several phases. Several technical studies are required to be developed and approved prior to any site development or platting action at the Rail Yards. These studies include a master grading and drainage plan to be approved by City Hydrology and a master utility plan (water and sanitary sewer) to be approved by the ABCWUA, per the City's Subdivision Ordinance and Development Process Manual.

6.9.2 Infrastructure

The master grading and drainage plan and the master utility plan (water and sanitary sewer) will provide the strategies for phased implementation and the recommendations for both short- and long-term solutions. A key aspect of the water portion of the master utility plan will be fire suppression, which will require review and approval by the City Fire Marshal. As individual projects are implemented at the Rail Yards, it is anticipated that detailed infrastructure plans will be submitted and approved for water and sanitary sewer availability statements from the ABCWUA and the Fire Marshal's office. Outside of the City's development process, the master developer shall coordinate with the dry utility providers for electric, gas, and fiber optic services. This should occur simultaneously with the other infrastructure master plans to avoid delay in the provision of services.

6.9.3 Transportation

A Transportation System Report was completed in May, 2010, and a Traffic Impact Study was completed in October of 2013 (2013 TIS) based upon the Master Plan's Approved Uses by Parcel. See Appendix B. As the site is subdivided and phased development occurs, the 2013 TIS shall be considered by the City Traffic Engineer, who will determine if the 2013 TIS is applicable as prepared, requires updating, or if a new study is needed.

Mitigation recommendations of the applicable TIS shall be implemented as required for project development and in accordance with any provisions of the Master Plan Agreement and Master Development and Disposition Agreement.

Because access to the site and the availability of on-site parking are extremely limited, emphasis shall be placed on providing alternative modes of transportation in order to reduce reliance on automobile

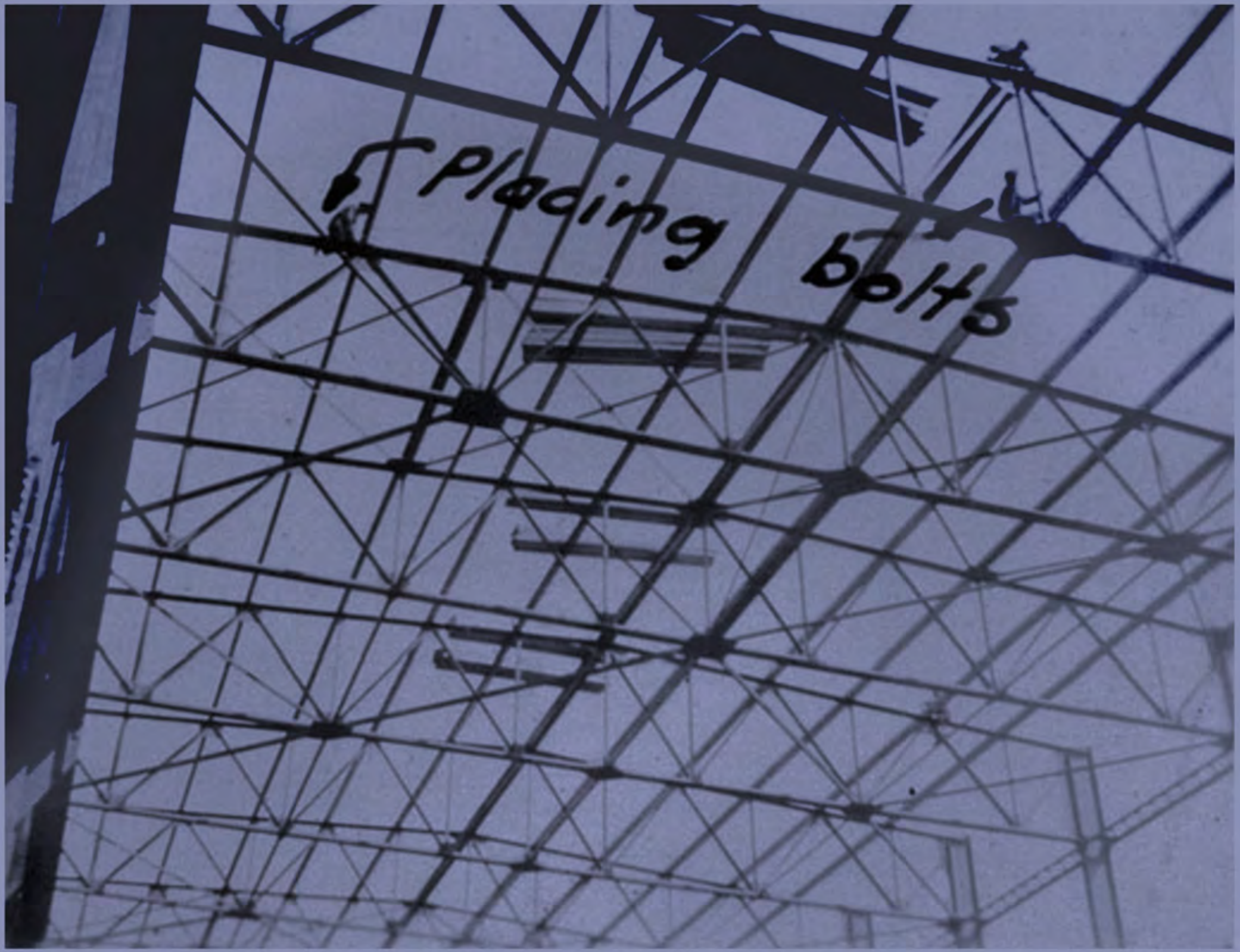
trips. Transit service that is publicly and/or privately provided shall be considered a preferred method of providing access to the site.

Bicycle and pedestrian access shall also be prioritized.

6.9.4 Platting

The Rail Yards property will be platted in order to facilitate acquisition and development of individual projects and phases. Since all projects are required to have additional review, it is anticipated that bulk land variances will be requested for future phases consistent with the master infrastructure plans. Platting may occur simultaneously with the DRB's review of Site Development Plans for Building Permit.

All future platting actions are based on the Site Development Plan for Subdivisions, and shall be per the Subdivision Ordinance.


Folding bolts

DESIGN GUIDELINES 7

7.0 DESIGN GUIDELINES

Intent
The design guidelines described in this section pertain more generally to infill (new) construction and general site layout.

7.1 Infill Design Guidelines

7.1.1 Architectural Character / Style
The historic resources of the Rail Yards site are extraordinary examples of machine-age architecture where the full prowess of American ingenuity was brought to bear on building technology. The modern age in architecture is characterized by the idiom "form follows function" and few sites in the United States can boast such a pure expression of this ethos than the Rail Yards.

Accordingly, infill development must respect this context by not attempting to mimic the historic aesthetic in architectural style. Rather, the Master Plan recommends three appropriate architectural guidelines for infill development, as follows:

- Infill development that creates new occupiable square footage shall be simple and volumetric.
- Infill development should not have a recognizable architectural style and/or should not try to mimic a historic style.
- Infill development should capture the spirit of the Rail Yards by utilizing current leading technology and/or engineering.

The goal of these architectural guidelines is to produce infill development that is both compatible with the historic resources and yet clearly distinct; a goal that is critical from a preservation perspective given that the entirety of the Rail Yards site is to be listed to the National Register of Historic Places.

7.1.2 Massing / Shape
The Rail Yard's existing structures are almost universally simple boxes that are generally two to four times as long as they are wide. They typically have only a few, small scale offsets in plan or elevation. This massing is a direct expression of their function as rail based workshops. To ensure that redevelopment is compatible with this massing, the Master Development Plan recommends that infill development of this type be generally simple in massing with flat roofs.

7.1.3 Orientation
Orientation of infill development shall follow standards contained within the SU-2/HLS zone. New development along 1st and 2nd Streets should be oriented to the street with entrances and window openings directly onto the street frontage. Development housing retail and residential uses will engage the street facade and support the creation of a vibrant and active urban landscape.

7.1.4 Building Materials
The buildings and structures that make up the Rail Yards complex employ a wide range of industrial materials and building techniques used during the first half of the twentieth century: steel framing, glass curtain walls, reinforced concrete, brick and wood timber framing (See Fig. 18, Existing Palette). The varied materials are united in the raw and basic manner in which they are assembled. There are no composite wall assemblies; materials are expressed equally whether inside or outside the building. The construction methodology is easily legible compared to modern building techniques that often hide building infrastructure beneath a layer of finish. The buildings of the Rail Yards by contrast are fully exposed and pure in their expression of building technology. Infill development must similarly strive to find this raw expression of materials.

New construction should be built using the palette of materials described above: steel, concrete, stone, masonry, and/or glass. Modern and innovative expressions of these basic materials are acceptable and depending on the application, recommended.

Examples might include glass facades, cable net structures, cast-in-place concrete set in milled formwork, or automated cut steel components. The use of high performance glass facades is recommended for certain infill buildings where the provision of natural daylight is critical and where the infill building may be juxtaposed against a historic building. In such a location, the goal of the infill building is both to defer to the historic building and to be clearly recognizable as a modern element.

7.2 Tracks

Railroad tracks are considered highly valuable elements within the public space that should be retained and incorporated into the redeveloped Rail Yards project where possible. Design studies shall be performed to assess options for maintaining rail tracks while also accommodating ADA accessibility standards. A few select rail tracks as identified on the Site Development Plan for Subdivision shall be preserved for future possible rail operations.

7.3 Parking

The Master Development Plan recommends that, to the degree possible, surface parking should be avoided and rather contained in a below grade structure. Although not preferred, surface parking will be required during early phases of development until such time as subterranean garage construction is feasible. Per the SU-2/HLS zone, off-street parking should be screened by buildings where possible and not front on streets.

The water table under the site is at approximately 25-28' which will allow one level of underground parking.

- Garage(s) shall be designed with ample space for on-site vehicle queuing so as to not impact 2nd Street traffic
- Garage(s) should be designed with ample lighting and security features to provide a safe and inviting space. Courtyard openings that bring natural light into the garage shall be encouraged although must be designed in tandem with garage exhaust and fire code requirements.
- Electrical vehicle charging stations and preferred spaces for carpool drivers should be included in order to encourage sustainable practices.
- The quality of the garage user's experience must be a priority; visitors to the site will make first impressions of the redevelopment based on this experience. Spaces shall be easy to locate, visibility shall be good, layout shall be well organized, and circulation paths easy to follow with integral way finding signage. Garage should be designed to the same high standards as the balance of the project.
- Current best practices for ticketing / payment systems should be utilized to simplify use of garage and prevent long wait times at entry/egress.

7.4 Loading

Project loading requirements will depend heavily on the uses ultimately incorporated into the Rail Yards redevelopment. For example, if light industrial uses are incorporated, the site will need to accommodate some truck or rail loading facilities. If the site remains more business/ office related, loading requirements will be much less. The Master Plan must afford sufficient flexibility to accommodate all possible future configurations. Basic loading concepts are as follows:

7.4.1 Rail

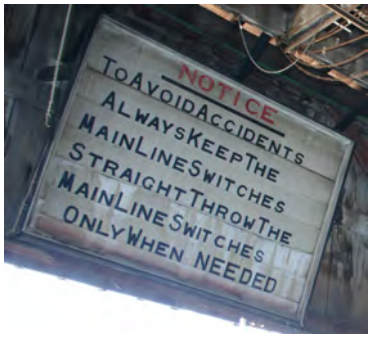
Direct rail access will be preserved to the southern portion of the site by virtue of the existing BNSF turntable easement that currently remains in place. Future rail loading operations may be incorporated using this access if required, although this would need to be coordinated with the use designations for Parcel 1. Direct rail access may also need to be incorporated at the northern portion of the site through use of one of the spur lines that historically connected the Rail Yards site to the main BNSF lines.



"Wayfinding" signage, South Washroom Building



Safety signage, South Washroom



Safety signage, Sheet Metal House



Sandstone facade of Firehouse with integral Logo



Masonry facade of Blacksmith Shop with painted and integral logo/window



Cast-in-place concrete structure of Storehouse Building with painted logo



Cast-in-place concrete structure of Machine Shop with integral logo



Machine Shop Crane specification/signage

Figure 6: Existing Palette



Rail Lines adjacent to Transfer Table



Machine Shop Floor,
3" thick Kreolite creosoted woods blocks sit on a 6" thick concrete floor to dampen sound



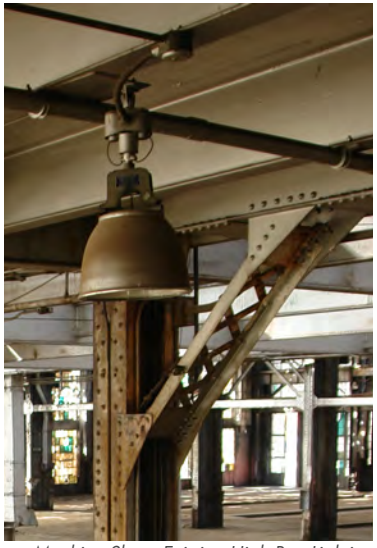
Turntable, Steel rail tracks and wood railroad ties



Perimeter street lighting and welding lines



Machine Shop, Stair to Mezzanine



Machine Shop, Existing High Bay Lighting



Machine Shop, Urinals

7.4.2 Truck

Truck access to the site is relatively limited given that the existing historic buildings constrain access to a large portion of the 2nd Street elevation. The only opportunity for loading operations along the southern portion of the site is directly from 2nd Street, by turning onto the site at the proposed Preliminary Parking access point under the bridge crane and immediately adjacent to the north end of the Storehouse. Truck loading access could be accommodated within the 50ft width under the historic bridge crane (Parcel 4), adjacent to the south elevation of the Machine Shop. It is recommended that this area be used for limited loading and delivery operations only.

- Truck access to the northern portion is less constrained and if required, may be accommodated at the far north portion of the site where direct vehicle access may be provided off 1st Street.
- The vacated portion of 1st Street north of Hazeldine Avenue may be useful in providing a location for intermittent loading for adjacent retail and restaurant uses.
- The Master Development Plan recognizes the potential incompatibility between loading operations and public use/ enjoyment of the site. Truck loading in support of possible light industrial uses should be hidden and screened from public view. If more significant loading operations are required, the Master Plan may need to be adjusted.

7.5 Signage

The AT&SF rail line is well known for its characteristic Santa Fe logo of the simple square cross bound within a circle. Long before today's age of branding, this logo was a symbol of high quality transit and a commitment to high quality design. The Santa Fe logo is incorporated throughout the Rail Yards complex (See Figure 6) as an integral design element that should be used to inform future signage.

- Signage is to be used only where required and should be kept to a minimum. The spaces and buildings of the Rail Yards should be free from excessive signage and no commercial advertising of offsite products and services is to be allowed on the grounds other than required for business identification and occasional advertising for site-related events and activities.
- Sign size, locations, materials and methods of installation should be consistently employed across the entire Rail Yards site.
- Signage and building identification should be an integrated design element of the building onto which it is applied.

7.6 Security

Given its relatively large 27.3 acre footprint and the likely mixed-use nature of its occupancy, the Rail Yards development will require a constant security presence. The juxtaposition of private professional users alongside public oriented cultural, retail and housing users will require additional safeguards not normally required of a single-use, more predictable user environment. Recommended security standards are as follows:

- The Rail Yards will require a full-time, 24-hour security presence.
- Similar to the control of public park facilities, the Rail Yards may need to incorporate hours of operation limitations to control after hours use.
- Given its 2,000ft long frontage along 1st and 2nd Streets, access to the Rail Yards site is not intended to be controlled, and in fact, is not feasible to achieve given other urban design requirements. Access to buildings and parking facilities, however, will be controlled.
- Installation of a network of CCTV security cameras should be considered to assist with site security.

7.7 Public Art

The Rail Yards Master Development Plan is founded in a deep commitment to art and architecture. From the beauty of the existing structures to the quality of design required of all proposed infill development, the Rail Yards is intended to become a world-class center for art and architecture; a center not in terms of its collection of art museums and galleries, but a center in terms of the unparalleled integration of art and architecture in the creation of public space. Public art recommendations are provided as follows:

- The Master Plan acknowledges and accepts the concept of architecture as art.
- The Rail Yards will include venues for artistic expression and will celebrate Albuquerque's vibrant art community.
- Traditional and digital murals are appropriate mediums of artistic expression.
- A Rebuilt Smokestack may be developed as a venue for Public Art.

7.8 Sustainability

The design of all new elements and facilities is encouraged to incorporate sustainable design features. At a minimum, new facilities shall comply with the current City of Albuquerque adopted Energy Codes and should be LEED equivalent rated.

7.8.1 Energy Conservation

Rail Yards development should minimize energy consumption using the following measures, keeping in mind that such measures need to also comport with historic building requirements:

- Exterior Envelope Design: Provide building insulation at all new roofs, wall and below grade retaining wall assemblies (at conditioned spaces only). Seal buildings against air infiltration. Encourage passive solar design (trombe walls, direct gain) where feasible. Incorporate cool roof construction techniques (high reflectance, green roof concepts) to minimize heat island effects.
- Solar Fenestration: Provide east-west building orientation to facilitate solar control. Minimize west and north exposures. Maximize south exposures. Use insulated glazing at all new construction where possible.
- Daylight: Maximize natural daylight to reduce electrical lighting loads.
- Natural Ventilation: Incorporate operable windows where operation (open vs. closed) can be monitored.
- Lighting: Use energy efficient light fixtures (i.e. LED's) both inside and at exterior locations.
- Light Controls: Provide occupancy sensors at all tenant spaces to limit power consumption when spaces are not in use.
- HVAC Systems: Use high efficiency equipment, programmable thermostats, incorporate economizer cycles. Analyze the potential use of centralized HVAC for the Rail Yards site to increase efficiency and conservation of resources. Consider cogeneration systems that utilize heat energy to simultaneously generate electricity and useful heat.
- Appliances: Use high efficiency type appliances.

7.8.2 Water Conservation

Water conservation efforts are either required by code or are strongly encouraged. Additional measures are as follows:

- Incorporate rain water harvesting for supplemental landscape irrigation and non-potable water use. Where possible, use above ground cisterns to catch roof water runoff for reuse in landscape irrigation. The collection of rainwater into cisterns reduces the amount of water that needs to be handled by storm water detention ponds. Above ground cisterns avoid the problem of saturating subsoil. In the event of a leak in the system, the flow occurs above ground, and if not allowed

to pond, can avoid saturating the subsoils. The benefit to the City is a reduced need for storm water improvements for the Rail Yards. The benefit for the tenant is a source for landscape water that is not dependent on potable water sources. The benefit for the community is a citywide model for water management and conservation.

- Incorporate on-site water retention and infiltration through storm water management.
- Use high efficiency, low flow plumbing fixtures.
- Use low water irrigation techniques (drip, etc) and specify native and drought tolerant plan species. Use xeriscape principles of design.
- Reuse gray water for non-potable water needs (e.g., toilet flushing) and irrigation.

7.8.3 Alternative Energy Sources

- Provide Photovoltaic panels/membranes for on-site electricity generation.
- Consider solar panels for hot water generation and hot air systems.
- Passive solar design (trombe walls, direct gain)
- Consider opportunities to use or add alternate energy sources such as fuel cells, distributed energy generation, solar, thermal exchange, etc.
- Consider wind-powered electric generators, where feasible. (size, location, and placement are a major issue in context to the historic structures.)

7.9 Pollution Control

To create a plan that reduces pollution, the Master Development Plan proposes the treatment of storm water runoff by water harvesting, constructed swales, bio-remediation and other techniques to minimize non-point pollution from surface runoff.

The Master Development Plan strongly encourages the utilization of non-polluting materials by avoiding polluting materials or treatments in the construction and maintenance of buildings and sites. Polluting materials can include creosote, petroleum based paints and sealers, high volatile organic compound (VOC) solvents, insecticides, etc.

7.10 Exterior Lighting Guidelines

- Building lighting is appropriate if it is low level and consistently employed. For example, existing stone and cast-in-place concrete facades of the historic structures may be uplit. Architectural features may also be illuminated.
- Controlled, directional lighting should be used to highlight public spaces and walkways. The use of walkway-level lighting, such as wall pocket lights, is encouraged to accent pedestrian areas.
- Landscape lighting is encouraged to enhance certain landscape features. Landscape lighting should be concealed at grade.


FIRE DEPT.
HO.

LANDSCAPE GUIDELINES 8

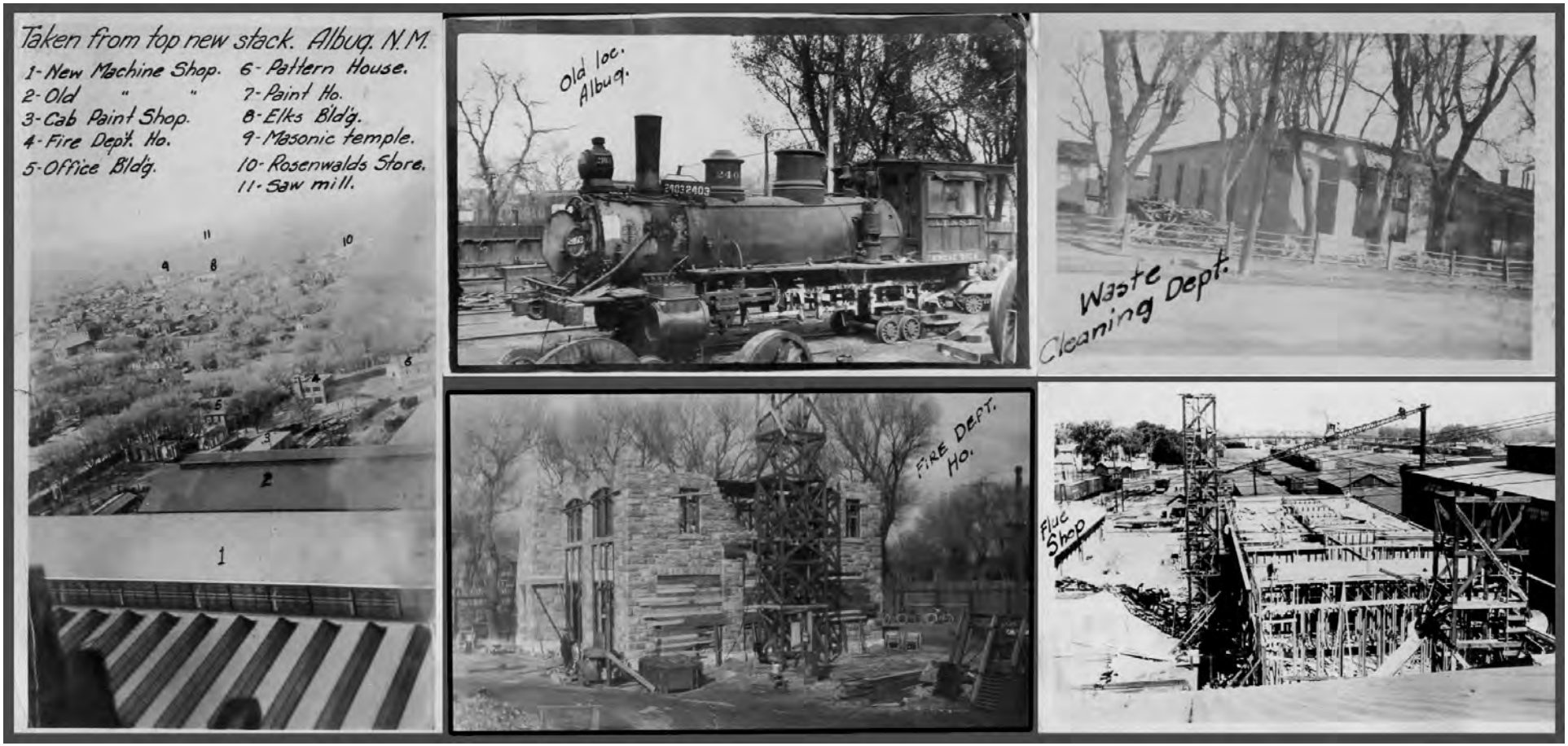
8.0 LANDSCAPE GUIDELINES

The landscape concept for the Rail Yards celebrates the gritty nature of a railroad setting with materials and plants that remind patrons of the form and functional needs of the historic users of the site. Although the Rail Yards are historically an industrial site, photographic evidence depicts landscape, specifically large shade trees, along the perimeter of the site. Plantings are a valuable component of our environment by cooling our city, cleansing the air, and absorbing noise. The plant palette for the Rail Yards includes a variety of plant species that are native or naturalized to the high desert landscape of New Mexico in an effort to create a space that relates to historic landscape condition of the site.

Refer to Section 6 for the Landscape Master Plan and the Landscaping regulations.

8.1 Design Goals

The landscape of the Rail Yards is intended to be aesthetically pleasing with distinguishing characteristics; meet the needs of the site users and adjacent neighborhoods; universally accessible; responsible with water use; considerate of maintenance issues; and considerate of the health,



Rail Yards construction showing Historic Landscape

safety and welfare of the users. Landscape design goals include:

- Enhance the attributes and characteristics of the site to provide a sense of place while respecting the history of the site.
- Design the site to serve as a focal point and activity hub for the surrounding community.
- Provide universal accessibility with strong connections to and throughout the site.
- Create visual connections to the site.
- Create a perimeter landscape buffer between the Rail Yards and the surrounding neighborhoods. Plant materials and a perimeter landscape buffer should be used to attenuate noise from the railroad tracks and provide visual interest.
- Provide shade via trees and areas that provide a retreat from sun exposure.
- Use plants to provide visual connections between multiple outdoor spaces and define edges of different land uses and outdoor pedestrian areas.
- Provide plants with flowers, textures, and/or fragrance for sensory stimulation (i.e. sight, touch, and smell).
- Preserve the City's natural resources through innovative design approaches which respond to water conservation and solar exposure. Captured stormwater from multiple sources will be utilized for irrigation purposes. Opportunities to harvest water should also be explored to optimize use of this valuable resource.

8.2 General Landscape Design

The site allows for a wide range of activities to serve the interests of the greater community as well as the local neighborhoods. Therefore, the landscape design for the Rail Yards allows for and encourages year-around use by employing a plant palette with four seasons of visual interest. Shade trees will be used strategically to provide enjoyable spaces protected from sun exposure. Temporary and/or permanent shade structures may be constructed within the site, but should be sited to preserve the long vistas to the historic buildings.

In addition, trees and other plantings will be placed to define areas for their unique uses and buffering for safety as applicable. The plant palette and landscape features (e.g. hardscape, furnishings, lighting, signage, etc.) will be consistent throughout the Rail Yards property to identify a clear image for the site. Designing for pedestrian level views as well as aerial views of the site will serve to garner a memorable space for the community.

Some areas of the site may function like that of an extensive roof garden or greenroof. Subterranean buildings and parking areas could provide ideal conditions to utilize green infrastructure opportunities. With a depth of only a few inches of growing medium, drought-tolerant plants with shallow root systems are a necessity. This type of roof garden is not intended to be walked upon, except for maintenance, and usually does not feature pedestrian access. As a result, this lightweight system may often be installed on existing buildings without the expense of structural modification and maintenance. Although retrofitting existing buildings with greenroofs may be explored, their inclusion is not anticipated at the Rail Yards. Rather, new subterranean structures could offer greenroof spaces. Typically, the main purposes of extensive roof gardens are to add insulation, address ecological issues, and improve views from overlooking offices and apartments. By incorporating greenroofs into the design of the Rail Yards, the site will serve as a local precedent in

how the economic undertaking of upgrading a desolate rooftop or creating a new building's greenroof space is far less of a burden when compared to the ecologic and healthful contributions immediately and over time.

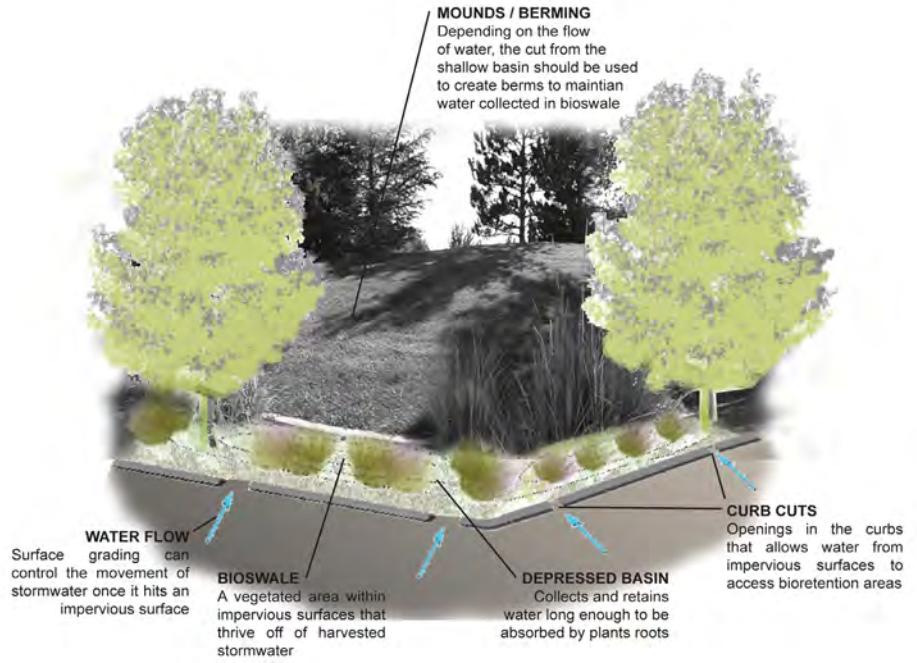
The proposed landscape design for the Rail Yards emphasizes sustainability with permeable surfaces, low water use, low maintenance, and recycling to the greatest extent possible. On-grade plaza elements not directly above the subterranean garage should include permeable hardscape options. The plant palette shall primarily include native and/or naturalized plant species that perform well in an arid environment. Plants will be chosen for their ability to stimulate the senses by texture, fragrance, and/or flowers. Recycling on-site materials for soils, mulches, and landscape features are encouraged in an effort to celebrate the setting and history of the site.

Rainwater harvesting measures, such as curb cuts and bioswales, shall be provided where feasible. Curb cuts (minimum 1' wide) may be provided in places where there is a curb or seat wall in order to allow water runoff to infiltrate landscape areas. Swales shall be composed of native and/or naturalized vegetation with cobble along the centerline and side slopes no steeper than 3:1 or use of vertical boulder walls as edging. Soils may need to be amended to facilitate infiltration. Intermittent check dams may be installed to further abet silt capture as necessary. The image on this page illustrates multiple options for stormwater capture that may be used at the Rail Yards.

All planting areas, other than turf, shall be top dressed with a minimum 3" layer of mulch. Turfgrass will be limited per City requirements and placed to maximize pedestrian views and access.

8.3 Landscape Planting Design

(Note: This plant palette serves as a suggested list and others may be added to fit particular situations as necessary.)



Options for stormwater capture

There are four primary areas of landscape plantings at the Rail Yards property. These may include but are not limited to:

- Perimeter Landscaping
- Pedestrian Circulation Paths
- Connectors
- Transit Plaza

The landscape treatment is limited to these four areas. The main plaza areas are not anticipated to include any plant materials. The planting approach for each of these four areas is provided below. See Plant Palette at the end of this section for a complete list of suggested plant species for the Rail Yards site.

8.3.1 Perimeter Landscaping

Landscaping is located along most of the site's boundary utilizing a plant palette that adjusts depending on site conditions (i.e. slope,

orientation, activity space, etc.) The majority will be planted with shrubs, groundcovers, native and ornamental grasses, vines, and flowers, but turfgrasses are allowable within the confines of the City's limitation on high-water-use turf.

Turfgrass will be limited, but placed in key locations for patron use. The workforce housing is anticipated to have one large turfgrass area for use by residents for recreation and community gathering events.

Appropriate traditional, recreational turfgrass species include but not limited to:

- Poa hybrid (see Plant Palette at the end of this section for description of specifications as well as an example species)

Appropriate native and general use turfgrass species may include but are not limited to:

- Bouteloua species – Grama
- Buchloe dactyloides - Buffalograss
- Hilaria jamesii - Galleta

Grasses are a key component to the natural New Mexican landscape as they can be found growing successfully across all areas of the state. Grasses typically are fast-growing and have strong root systems that are well-suited for stabilizing slopes to prevent erosion. The steepest slopes should include dense plantings of ornamental grasses.

Ornamental grasses, shrubs, groundcovers, and vines with aggressive rhizomes and stolons may all be planted on steeper slopes (5:1 and greater) to help stabilize the soil. These plant types should also be included in the buffer areas between more manicured (i.e. traditional turfgrass) to wilder areas (i.e. native turf) as well as for general planting on the edges across the site.

Appropriate ornamental grass species for steep slopes and other areas within the Perimeter Landscaping may include, but are not limited to:

- Aristida longiseta – Purple Threeawn
- Calamagrostis x acutiflora 'Karl Foerster' – Karl Foerster Grass
- Muhlenbergia capillaries 'Regal Mist' – Regal Mist Muhly Grass
- Pennisetum species –Fountain Grass

Appropriate shrubs, groundcovers, and vines species for steep slopes, buffer areas and general planting include but not limited to:

Shrubs & Groundcovers

- Artemisia & Salvia – Sage (deciduous & evergreen)
- Buddleia davidii nanhoensis – Dwarf Butterfly Bush
- Chrysothamnus nauseosus - Chamisa
- Jasminum nudiflorum – Winter Jasmine
- Leucophyllum frutescens 'compactum' – Compact Ceniza
- Potentilla species – Shrubby and Spring Cinquefoils
- Prunus besseyi – Western Sand Cherry
- Psorothamnus scoparius – Broom Dalea
- Rhus trilobata species –Sumac
- Agave species –Agave
- Atriplex canescens – Fourwing Saltbush
- Ceratostigma plumbaginoides – Blue Leadwort
- Ephedra species – Joint Fir
- Fallugia paradoxa – Apache Plume
- Lavandula species –Lavender
- Opuntia ellisiana – Spineless Prickly Pear
- Pinus mugo – Mugo Pine
- Rosmarinus officinalis–Rosemary
- Salvia species –Sage
- Santolina species – Santolina
- Sedum species - Stonecrop
- Yucca species –Yucca

Vines
- Campsis radicans – Trumpet Vine
- Parthenocissus inserta – Woodbine
- Hedera helix – English Ivy
- Lonicera species - Honeysuckle

Flowers should be included within the Perimeter Landscaping to provide year around color, as an accent across the site and at key gateway locations. A variety of flowers may be used.

Appropriate flower species for the accent at the base of the Perimeter Landscaping may include but are not limited to:

Perennials
- Alcea rosea - Hollyhock
- Centranthus ruber – Red Valerian
- Hemerocallis hybrids – Daylilies
- Linium perenne – Blue Flax
- Penstemon spp. – Penstemon
- Ratibida columnifera - Coneflower

Bulbs
- Crocus spp. - Crocus
- Narcissus spp. – Daffodil
- Muscari armeniacum – Grape Hyacinth
- Tulipa spp. – Tulip

In addition, the Gateway locations also may include but are not limited to:

Annuals
- Gaillardia pulchella – Blanketflower
- Mirabilis species – Four O'clock
- Salvia species – Sage
- Tagetes species - Marigold
- Viola wittrockiana – Pansy

8.3.2 Pedestrian Circulation Paths

The paths for pedestrians are located throughout the site. Shade trees and seating opportunities will be placed along these paths where appropriate to create a welcome retreat for enjoying views of the site.

The paths provide a means for pedestrian navigation across the Rail Yards property. Generally, the paths run north-south. Trees shall be placed to define both sides of the path edges as well as "rooms" and other features along the paths to be highlighted. Shade trees should be provided to create comfortable retreats for patrons as they traverse the site. Ornamental trees will identify special features along the path. Evergreen trees shall be included to offer year around color throughout the site.

Appropriate tree species for the Pedestrian Circulation Paths may include but are not limited to:

Shade Trees
- Ulmus Americana 'New Harmony' - American Elm
- Platanus wrightii – Arizona Sycamore

Ornamental Trees
- Chilopsis linearis – Desert Willow
- Robinia ambigua 'Purple Robe' – Purple Robe Locust

Evergreen Trees
- Pinus nigra – Austrian Pine
- Pinus sylvestris – Scotch Pine

8.3.3 Connectors

The connectors are the major entrances to the site, both pedestrian and vehicular, into the Rail Yards property. The connectors include the Neighborhood/Site Interface locations as secondary access points to the property. These locations may include site furnishing and be

framed with shade and ornamental trees as a form of wayfinding to indicate an access point. In addition, flowers may be used to accent these major access points for a welcoming entry.

Appropriate tree species for the Connectors may include but are not limited to:

Shade Trees
- Fraxinus species –Ash
- Acer glabrum - Rocky Mountain Maple

Ornamental Trees
- Foresteria neomexicana – New Mexico Olive
- Pyrus species – Flowering Pear
- Vitex agnus-castus – Chaste Tree

For appropriate flower species for the Connectors, see list for Perimeter Landscaping.

8.3.4 Transit Plaza

The transit plaza serves as the "front porch" of the Rail Yards property. Shade and specialty trees as well as ornamental trees shall be used to provide protection from the sun for waiting transit passengers as well as accenting the space while still framing views into the site.

Appropriate tree species for the Transit Plaza may include but are not limited to:

Shade Trees
- Fraxinus species –Ash
- Tilia Cordata – Littleleaf Linden

Ornamental Trees
- Pyrus species – Flowering Pear
- Robinia ambigua 'Purple Robe' – Purple Robe Locust

All trees on the property shall be placed in tree grates if not within landscape planting areas. These features shall be designed to provide protection for the trees from pedestrian traffic.

With exception of the turfgrass areas, all planting areas shall be top dressed with mulch as described in the General Landscape Design section of this document. Mulches shall be provided that are compatible with the conditions of the landscape as well as the plant selection for the space. Organic mulch will improve soil quality and is ideally suited for plants that prefer humus conditions (e.g. annuals and other heavily flowering plants). Rock mulches are best for plants requiring well-drained soil as well as for areas needing minimal maintenance. Organic mulches typically need to be renewed annually, but rock mulch may last for several years before needing supplemental mulch. Mulches placed in runoff, drainage areas and/or in wind "tunnels" shall be angled-face rock mulches that are heavy enough (i.e. large enough diameter) to withstand stormwater and strong air flows. All areas top-dressed with rock mulches shall include a filter fabric underlay to minimize maintenance needs.

8.3.5 Workforce Housing

The workforce housing is proposed to be located at the southwest portion of the site. The landscaping in this location is focused more on serving residents rather than the visiting public. Although drought-resistant species will still dominate the plant palette, places for recreation that include turfgrasses are encouraged. Gathering spaces, with shaded seating opportunities for community events, shall be provided.

8.3.6 Firehouse

The firehouse is a historic building that will be highlighted with its own plaza. Planting beds and trees in tree wells may be incorporated within the plaza to soften the space and reduce sun exposure. Outdoor seating with umbrellas may also be used to activate this pedestrian area.



Sycamore



Ash



American Elm



Littleleaf Linden

8.4 Plant Palette

(Note: This plant palette serves as a suggested list and others may be added to fit situations as necessary)

8.4.1 TREES

Deciduous Shade and Street Trees

- Acer glabrum - Rocky Mountain Maple
- Fraxinus species –Ash
- Platanus wrightii – Arizona Sycamore
- Tilia Cordata – Littleleaf Linden
- Ulmus Americana 'New Harmony' - American Elm



Chaste Tree



New Mexico Olive Tree



Flowering Pear



Desert WIllow

Deciduous Flowering Ornamental Trees

- Chilopsis linearis – Desert Willow
- Foresteria neomexicana – New Mexico Olive
- Pyrus species – Flowering Pear
- Robinia ambigua 'Purple Robe' – Purple Robe Locust
- Vitex agnus-castus – Chaste Tree



Scotch Pine



Austrian Pine



Low-Water Traditional Turf



Grama + Buffalograss Mix

Evergreen Trees

- Pinus nigra – Austrian Pine
- Pinus sylvestris – Scotch Pine

8.4.2 GRASSES

Traditional Turf Species

- Poa hybrid – (or similar that requires less irrigation, has deeper roots and aggressive rhizomes, plus excellent heat tolerance; e.g. Reveille - Gardner Turfgrass)

Native Turf and General Use Species

- Bouteloua species–Grama
- Buchloe dactyloides - Buffalograss
- Hilaria jamesii - Galleta



Fountain Grass



Purple Threeawn



Muhly Grass



Karl Foerster Grass

Ornamental Species

- Aristida longiseta – Purple Threeawn
- Calamagrostis x acutiflora 'Karl Foerster' – Karl Foerster Grass
- Muhlenbergia capillaries 'Regal Mist' – Regal Mist Muhly Grass
- Pennisetum species –Fountain Grass



Butterfly Bush



Sage



Chamisa

8.4.3 SHRUBS & GROUNDCOVERS

Deciduous Shrubs & Groundcovers

- Artemisia & Salvia Species – Sage
- Buddleia davidii nanhoensis – Dwarf Butterfly Bush
- Chrysothamnus nauseosus - Chamisa
- Jasminum nudiflorum – Winter Jasmine
- Leucophyllum frutescens 'compactum' – Compact Ceniza
- Potentilla species – Shrubby and Spring Cinquefoils
- Prunus besseyi – Western Sand Cherry
- Psorothamnus scoparius – Broom Dalea
- Rhus trilobata species –Sumac



Agave



Stonecrop



Yucca

Evergreen Shrubs & Groundcovers

- Agave species –Agave
- Artemisia & Salvia species –Sage
- Atriplex canescens – Fourwing Saltbush
- Ceratostigma plumbaginoides – Blue Leadwort
- Ephedra species – Joint Fir
- Fallugia paradoxa – Apache Plume
- Lavandula species –Lavender
- Opuntia ellisiana – Spineless Prickly Pear
- Pinus mugo – Mugo Pine
- Rosmarinus officinalis–Rosemary
- Santolina species – Santolina
- Sedum species - Stonecrop
- Yucca species –Yucca



Trumpet Vine



Honeysuckle



English Ivy

8.4.4 VINES

Deciduous Vines

- Campsis radicans – Trumpet Vine
- Parthenocissus inserta – Woodbine

Evergreen Vines

- Hedera helix – English Ivy
- Lonicera species - Honeysuckle



Blanket Flower



Blue Flax



Red Valerian



Crocus



Daylily



Penstemon

8.4.5 FLOWERS

Annuals

- Gaillardia pulchella – Blanketflower
- Mirabilis species – Four O'clock
- Salvia species – Sage
- Tagetes species - Marigold
- Viola wittrockiana – Pansy

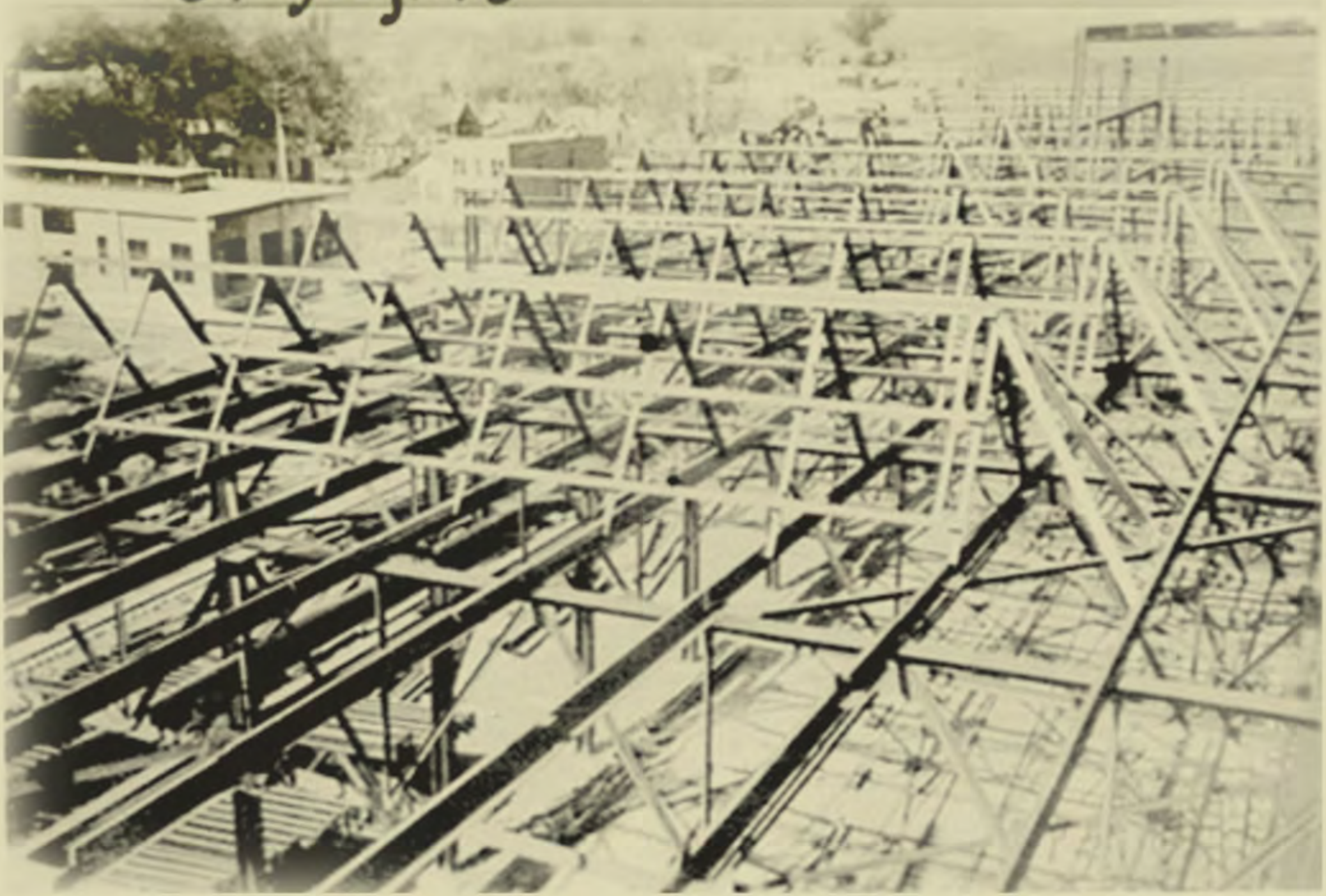
Perennials

- Alcea rosea - Hollyhock
- Centranthus ruber – Red Valerian
- Hemerocallis hybrids – Daylilies
- Linium perenne – Blue Flax
- Penstemon spp. – Penstemon
- Ratibida columnifera - Coneflower

Bulbs

- Crocus spp. - Crocus
- Narcissus spp. – Daffodil
- Muscari armeniacum – Grape Hyacinth
- Tulipa spp. - Tulip

Skylights –



TRANSPORTATION INFORMATION AND RECOMMENDATIONS 9

9.0 Transportation Information and Recommendations

Intent

This section provides guidance and background information for vehicular, rail, transit, pedestrian and bicycle access to and from the site.

9.1 Vehicular Site Access Information

The existing transportation system that serves the Rail Yards is not likely to change in any significant way in the future. Development of this site has enormous benefits to the surrounding neighborhoods and the city as a whole through the creation of a vital, economic driver that provides jobs, housing, and public space in the heart of the city. The Master Development Plan discusses alternative modes of transportation as a viable strategy to reduce the impact of the Rail Yard redevelopment on the existing street network.

The primary vehicular access route associated with the Rail Yard Master Development Plan will be 2nd Street. Third Street will act as a secondary access for the project, but will most likely provide an accommodation for traffic that currently passes through the neighborhood on 2nd Street today. These two streets are designated as collectors by MRCOG and have a capacity of 11,000 vehicles per day. Second and 3rd Streets currently have an excess capacity of 6,100 and 7,900 vehicles per day respectively.

The project should be designed so impact is minimized to Pacific, Santa Fe, Cromwell, Atlantic, and Hazeldine Avenues. Those five streets are local residential streets with single family residential driveways. Generally speaking, the City of Albuquerque policy is to minimize traffic on local residential streets so that the volume typically does not exceed 1,000 vehicles per day. The Rail Yards site benefits from direct access to the existing street grid to the west, its proximity to Bridge Boulevard to the south, and its location just south of Coal and Lead Avenues.

Second Street south of Coal Avenue has recently been reconfigured into a two-way street, as was mandated by the City Council. Second Street was recently classified as a Collector Roadway on the Long Range Roadway Map for the Albuquerque Metropolitan Area. Parallel parking is permitted along the west side of the street. The posted speed limit is 30 mph. Third Street is currently configured as a two-way street with delineated parking on both sides of the street to the south of Coal Avenue. The posted speed limit is 30 mph.

9.2 Traffic Impact Study Information

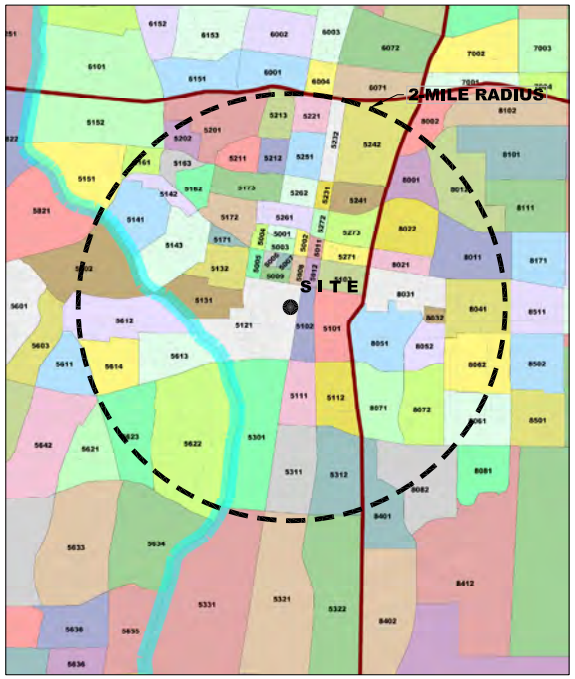
A Traffic Impact Study (see Appendix B) was completed in October of 2013 based upon the Master Plan land uses as described on the Site Development Plan for Subdivision. The purpose of the study was to determine the impact of the proposed development on the adjacent transportation system and recommend any improvements to mitigate the impact.

Utilizing the projected traffic volumes resulting from the development of the site into a mixed-use facility such as shown on the Site Development Plan for Subdivision site plan, in conjunction with projected 2018 traffic volumes, the 2013 TIS concluded that the development of the Rail Yards subject site will have no significant adverse impact on the existing signalized intersections of the adjacent transportation system and will have moderate adverse impacts to the existing unsignalized intersections of the system, provided the recommendations contained in the report are followed.

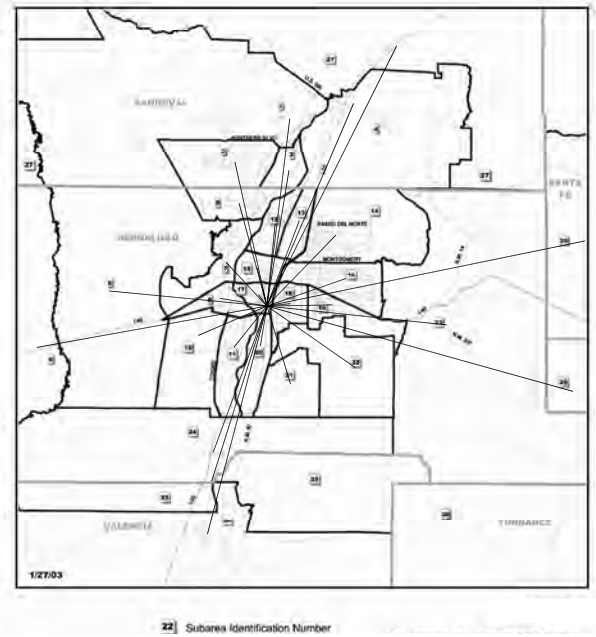
As the site is subdivided and phased development occurs, the 2013 Traffic Impact Study will be considered by City Transportation who will determine if the October 2013 study is applicable as prepared, requires updating, or if a new study is appropriate. Recommendations of the applicable TIS will be implemented as required for project development and in accordance with any provisions of the Master Plan Agreement and the Master Development and Disposition Agreement between the City and Samitaur Constructs.



Rail Yards, Aerial Map showing roadway infrastructure, Terry O. Brown, 2010



Rail Yards, Data Analysis Subzone (DASZ) Map, Terry O. Brown, 2010



Rail Yards, Trip Distribution Subarea Map, Terry O. Brown, 2010

9.3 Existing Access by Alternative Transportation

Direct transit service to the Rail Yards property and along 2nd Street does not currently exist. However, the site is within walking distance of the Alvarado Transportation Center, which is located approximately ½ mile to the north of the property and serves as a major hub for ABQ Ride, the RailRunner, and regional and national bus and rail service (Greyhound, Amtrak). Additionally, 4th Street has existing bus service and is approximately ¼ mile to the west of the Rail Yards. Existing transit routes are shown on the map on the next page.

9.4 Transit Recommendations

9.4.1 Transit Plaza

The Master Development Plan proposes a major Transit Plaza located at the heart of the Rail Yards site along 2nd Street located adjacent to the Machine Shop and Transfer Table.The development of the Transit Plaza should be coordinated with the implementation of direct transit service to the site.

9.4.2 Shuttle (Circulator) Service

In addition to the recommendation of increased ABQ Ride and/ or private transit service to the site, the Rail Yards Master Development Plan supports an express shuttle/trolley system concept referenced in the Barelas SDP and contained as part of the Downtown 2025 Plan. Such a system would link the Zoo, Tingley Beach, the Hispanic Cultural Center, 4th Street in Barelas and Downtown Albuquerque to the Rail Yards site. Connecting the Rail Yards to other area amenities via convenient transit service is vital to the success of the redevelopment of the area, in general, and the Rail Yards, specifically. The City should work closely with the Master Developer and other stakeholders to determine the appropriate timing and means for implementing such a service.

9.4.3 Rail Access

The Rail Yards Master Development Plan supports the possibility of bringing direct public rail access to the Rail Yards site whether it be for the Rail Runner or other future rail options that become available. If a rail station is someday located at the site, it should be located at the eastern terminus of the Transfer Table. Such a location would mirror the proposed Transit Plaza at the western terminus of the Transfer Table, creating a full multi-modal transit hub at the center of the project.

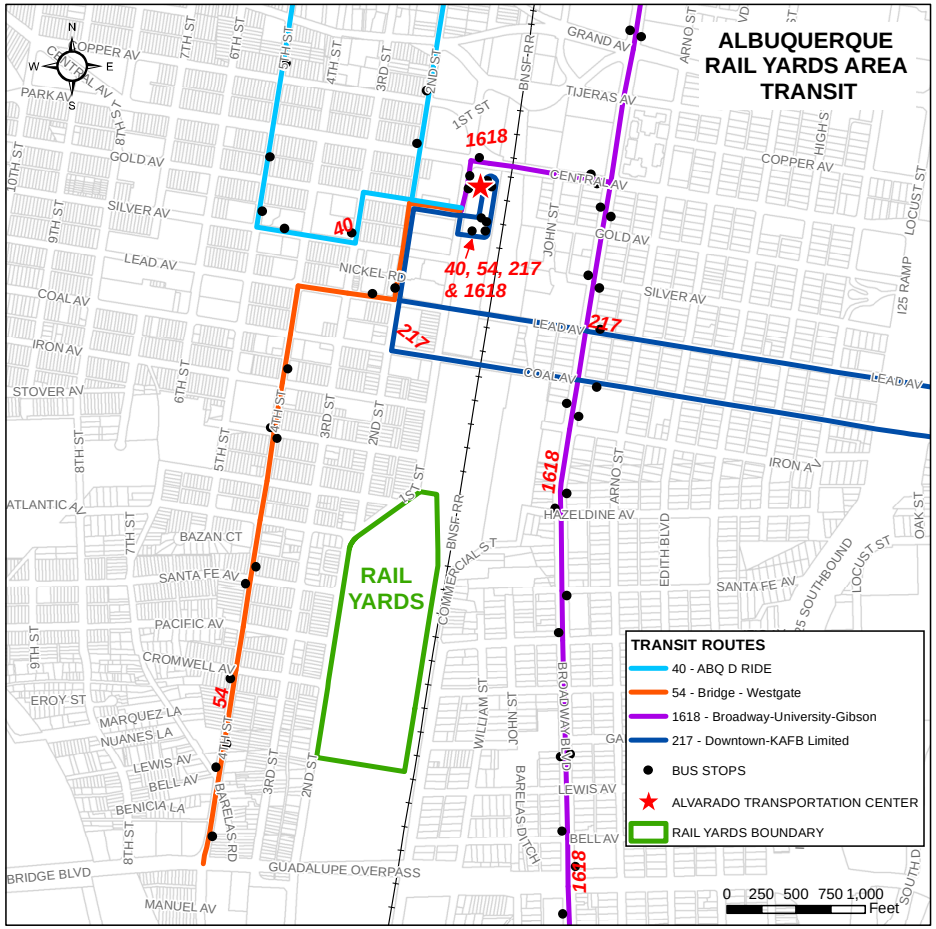
Other options for Rail connectivity include extension of the narrow gauge rail line that currently runs along Tingley Drive adjacent to the Bosque from its current terminus at the Zoo southward and eastward to connect to the National Hispanic Cultural Center and ultimately to the Rail Yards site. Such a novel method of site access would relate to the history of the Rail Yards and provide convenient access to other major cultural amenities.

9.5 Other Alternative Transportation Recommendations

9.5.1. Pedestrian and Bicycle Access

The City of Albuquerque recently improved the segment of 2nd Street where the Rail Yards is located with sidewalk and ADA ramp improvements on the west side only and added bike lanes (sharrows) as well. The City also recently completed significant improvements to Coal and Lead Avenues east of Broadway Blvd. that included streetscape, sidewalk widening, bike lanes, and street furniture. These projects benefit the redevelopment of the Rail Yards by improving pedestrian and bicycle facilities that can be used to access the site, but additional enhancements to roadways that provide access to the site will also be needed. The City (and Master Developer, where appropriate) should prioritize multi-modal improvements, focusing on pedestrian and bicycle facilities, along the following roadways that provide access to the Rail Yards:

- The eastern side of 2nd street in accordance with the proposed perimeter landscaping and pedestrian circulation paths in the Master Development Plan;
- 1st Street from the Alvarado Transportation Center to the site;



N:\AGISFILE\PROJECTS\PetraMorris\THG_Railyards\RailyardsArea_TRANSIT.mxd

Existing Transit Routes near the Albuquerque Rail Yards

- Coal and Lead Avenues, west of Broadway to 4th Street;
- The Bridge Blvd. (Guadalupe) overpass from Broadway Blvd. to 4th Street.

9.5.2 Crossings to and from South Broadway

Currently, there is not a direct connection from the Rail Yards to the South Broadway neighborhood to the east due to the railroad tracks. The closest connections that currently exist are to the north via



Circulation along the Bosque includes a narrow gauge rail line and pedestian/bike path.

Coal Avenue and to the south via Bridge Blvd. Both of these routes include significant out of direction travel, especially for pedestrians and bicyclists. Providing a more direct connection to the east, while challenging, would facilitate the realization of one of the main goals of the redevelopment: to reconnect South Broadway to the site and increase opportunities for South Broadway residents to take advantage of everything the site will offer, including employment and recreational activities.

Accordingly, the Rail Yards Master Development Plan includes two recommendations for providing direct connections to the South Broadway neighborhood, these recommendations, along with other viable means of connecting South Broadway to the site, should continue to be explored and prioritized in early phases of redevelopment.

Bridge Crossing

The Site Development Plan for Subdivision provides an above grade pedestrian bridge that would directly connect the Barelas and South Broadway neighborhoods through the heart of the Rail Yards project. The bridge would provide both pedestrian and bicycle access across the tracks and is intended to operate not only as a bridge but also as a series of retail spaces and as a primary visual gateway announcing

the redevelopment of the Rail Yards project to rail passengers. At a minimum, requirements for this bridge crossing shall include the following:

- Provide 24-hour convenient, easy-to-use and ADA accessible points of access at both sides of the track (stair/elevator access).
- Provide security / safety features that will prevent falling, throwing of objects onto the track, etc.
- Be designed with adequate lighting

At-Grade Crossing

The Site Development Plan for Subdivision also provides an at-grade pedestrian crossing between the South Broadway neighborhood and the site. Members of the South Broadway community expressed concerns that the pedestrian bridge concept may not be financially feasible and have asked for an at-grade option to be included in the Master Development Plan to ensure site access. Accordingly, the Master Development Plan recommends the direct extension of Cromwell Avenue from its terminus at Commercial Avenue across the railroad tracks and onto the southern part of the site. Provision of an at-grade crossing will require approvals from the Federal Railroad Administration (FRA), the owner of the Rail Line (NMRX), and state and local agencies in order to ensure the highest level of pedestrian safety. At a minimum, requirements for any at-grade crossing shall include the following:

- Pedestrian crossings will require gates.
- All crossing sub-grade will be constructed to standard practice for rail and pedestrian interaction.
- Sub-base will be designed for low maintenance.
- Crossings shall be ADA compliant.
- Crossing shall have rubber filler in the gaps between the rail and the crossing surface resulting in the safest operation with a high volume of pedestrian traffic. The filler fits snugly against the field and gauge side of rail to form a barrier between crossing material and rail that blocks out moisture and protects the rail fastening system. It also provides an easy walking and safe surface at rails.

9.6 Site Reconfiguration

The effects of the reconfiguration of 2nd Street to a two-way street resulted in the vacation of the portion of 1st Street that runs along the northern portion of the site (see Figure 7). The former 1st/2nd Street corner of the Rail Yards site is now curved back in favor of a more generous 2nd Street traffic alignment. First Street now terminates at Hazeldine Avenue instead of merging with 2nd Street. The effect is improved traffic flow and safety. The vacated portion of 1st Street has become a valuable asset to the Rail Yards by providing direct access onto the site from 1st Street at the north. In addition to this area, another smaller area to the south was also created by virtue of the realignment. Similar to the vacated portion of 1st Street, the Master Development Plan recognizes the potential that this portion of land could be used in support of the area wide redevelopment.

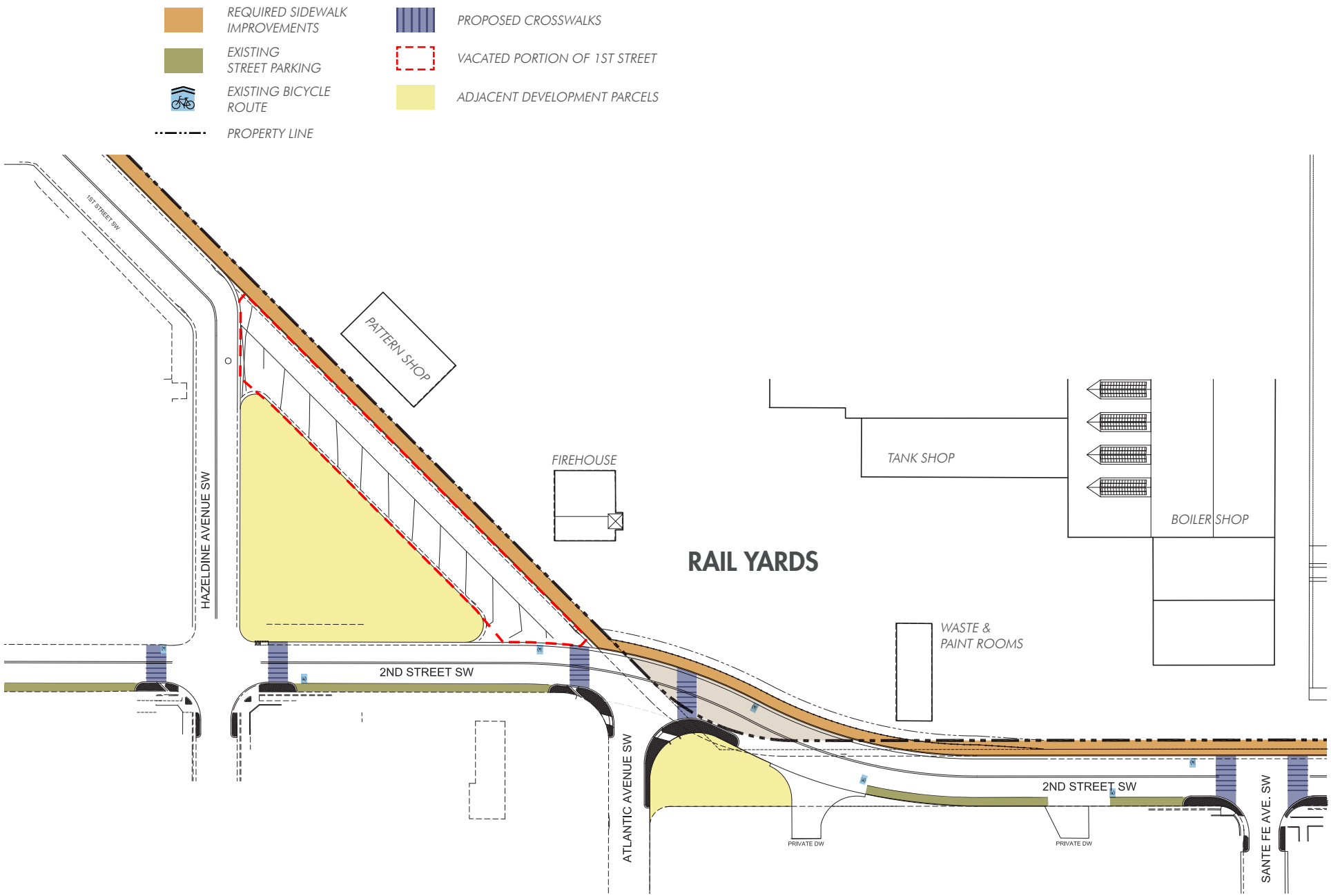


Figure 7: Enlarged Street Plan


Erecting

CONCEPT AND PHASING PLAN 10

10.0 CONCEPT AND PHASING PLAN

Intent

This section illustrates conceptual plans for redevelopment of the Rail Yard site. The concepts contained herein are not compulsory elements of the project and will require further studies and approvals as established by City codes and/or the standard processes that are outlined in the SU-2/HLS zone in the Barelas Sector Development Plan.

10.1 Vision Statement

There are always planning and building antecedents. We don't start from zero. And there's inevitably a relationship between where we were, where we are, and where we're going. The essential question for the Rails Yards site is how architecture might communicate both an acknowledgement of precedents -- salient built pieces of history -- and simultaneously push forward toward very different purposes, new and adaptively reused buildings, suggesting new directions for the city of Albuquerque's future.

Knowing where we've been makes the story of where we're going more legible, more intelligible. At the Rail Yards site, Albuquerque's built record is largely intact. But historic structures like the Boiler Shop, Machine Shop, Tender Repair/Tank Shop, and Flue Shop, though the buildings are extant, no longer fill their original functions. Those functions now belong to Albuquerque's heritage. They have for a while. The Concept Plan objective is to acknowledge that heritage -- the trains, the story of the opening of the American southwest with new transportation, new machines, new energy, and new opportunities for those who came.

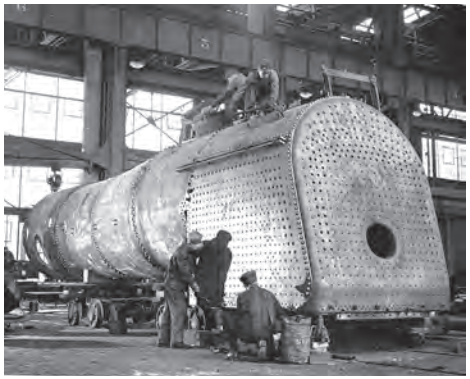
The Concept Plan celebrates the facilities that made the trains run.

How does a Concept Plan manage that celebration?

Not by simply reconstituting those historic buildings [though there's a role for this] whose uses have passed into history, but by giving those buildings a new, vital life, a new role in the burgeoning, evolving community that surrounds the site, and more broadly, an up-dated contemporary definition for urban life in the center of Albuquerque in the first quarter of the 21st century.

How do we acknowledge an old life, and simultaneously forecast a new one? We call our Concept Planning strategy for the Albuquerque Rails Yards site "Recollecting Forward."

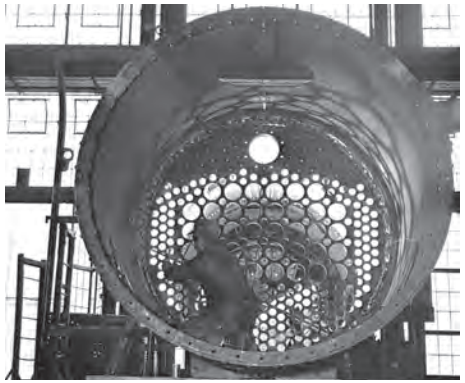
What the new plan retains in its entirety is the enduring spirit of the rail yards, the energy, the optimism, and the reconstituted exteriors of the primary buildings on the site. We rebuild the missing roundhouse, complete the original organizational logic of the site, but assign new



JOBS



COMMUNITY



ART



ARCHITECTURE

uses, new public and private purposes to both old and new buildings. So what's the roundhouse? Is it the original building? Not quite. Is it a new building? Perhaps, but its plan form re-iterates that of the original structure. The Concept Plan intends a hybridization of old and new without insisting on a clear distinction between the two.

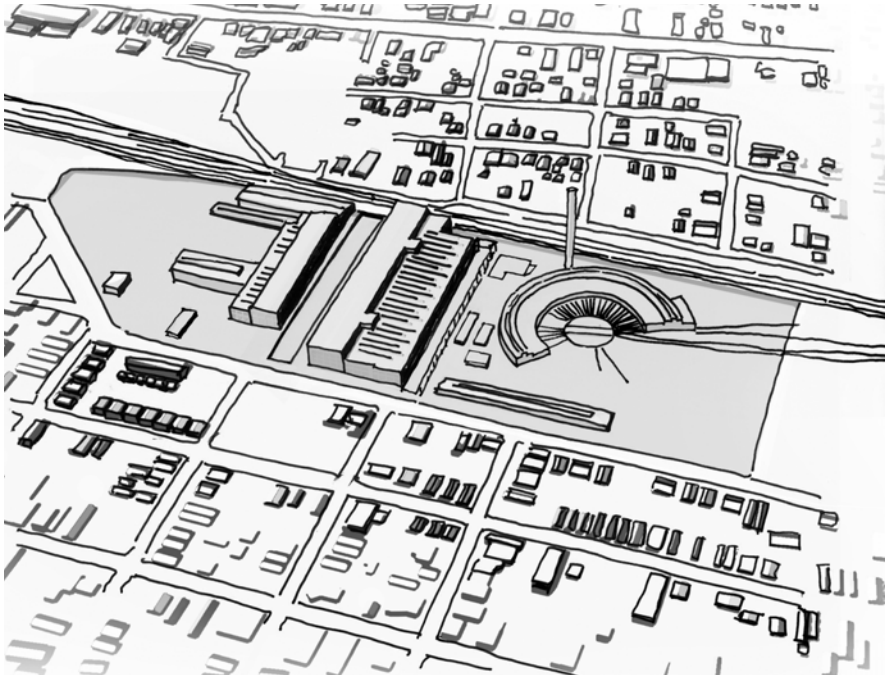
In summary, the primary goal of the Concept Plan Section 10 of the MDP document is to provide illustrative strategies for an organization of the Rail Yards site that will engender a vibrant, cohesive and viable community of mixed users sharing a common vision. The existing structures to be preserved and adaptively reused are the primary and dominant elements of the site; however they are not sufficient to accommodate the myriad uses identified in the Goals & Policies Section 5 and confirmed through the public comment process. New structures and improvements are required to make the site viable for development. The Concept Plan Section 10 proposes illustrative strategies for the design and integration of such structures so that they both complement the historic structures and provide a unified architectural language across the site. By contrast, Sections 6 and 7 and 8 of the MDP provide the development regulations and design guidelines to guide re-development of the site.

The intention of the Concept Plan is to preserve the "integrity" of the site and reinvent the "spirit"of the Rail Yards for a modern age. The intention is to "Recollect Forward."

To achieve these aspirations, the Concept Plan itself must be a living, working document that is built with sufficient flexibility to accommodate an evolving and unknown future set of conditions. The concepts, recommendations and design features that follow should be understood in this context.



RAIL YARDS, AERIAL PHOTO OF CURRENT SITE CONDITIONS



RAIL YARDS, DIAGRAM MASSING OF KEY HISTORIC RESOURCES TO BE PRESERVED OR REBUILT

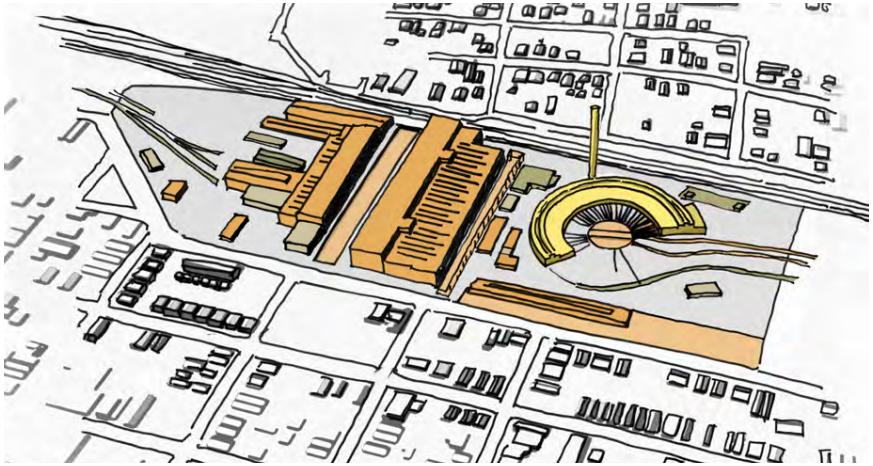
10.2 Preservation and Adaptive Reuse Standards

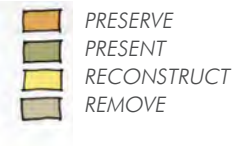
Preservation criteria and considerations are based on the understanding of cultural significance and the cultural values of a property. In the case of the Albuquerque Rail Yards, it should be looked at first as part of the train system in the United States, contributing to the development and creation of the country. The Albuquerque Rail Yards are an important element within that whole line, and one of its cultural values derives from this fact. This criterion puts the Rail Yards at a national and state level of significance, based on the role the railroad and the Rail Yards had in the development and history of New Mexico.

In keeping with the goals and policies stated in Section 5, the Master Development Plan seeks to preserve and adaptively reuse the majority of historic resources on site. However, while all buildings and structures (site features) tell some part of the story, not all building and site features are equally significant. In addition, the viability of arranging new uses for all existing buildings depends upon their condition and the opportunity to match a building configuration with a suitable reuse. The Master Development Plan requires the preservation of most of the built components of the complex, the re-construction of some important ones which have been demolished and which are crucial to the understanding of the place, the adaptive re-use of the buildings, and suggests the addition of modern facilities, landscaping and other features for optimal use of the site.

10.2.1 Preserve and Adaptively Reuse

Keep, consolidate, renovate, maintain – and reuse. It could be just the "envelope" (outside wall), or could include interiors, parts or whole, including windows, doors, fixtures, etc. On the site, elements of the highest cultural significance that shall be PRESERVED are listed as below (refer to map page 102):





- Fire Station (#1 on Map). The only building on the site officially recognized as a City Landmark by the City of Albuquerque at the time of the Master Development Plan's adoption.
- Machine Shop (#2 on Map)
- Bridge Crane (#3 on the Map)
- Boiler Shop (#4 on Map)
- Tank Shop/ Tender Repair Shop (#5 on Map)
- Flue Shop (#6 on the Map)
- Blacksmith Shop (#9 on Map)
- Storehouse (#10 on Map)
- Platform (#11 on Map). The only real platform still existing on the site, therefore representing all platforms, and being a characteristic element of all train stations and rail yards


FIREHOUSE


STOREHOUSE


TANK SHOP


TURNTABLE


BOILER SHOP


BRIDGE CRANE


BLACKSMITH SHOP


FLUE SHOP


MACHINE SHOP


TRANSFER TABLE

- Transfer Table (#14 on the Map)
- Turntable (#16 on Map), which is still functioning, attractive, and a very important element in every main train station and rail yard. In addition, it is still in use by the BNSF Railroad.
- Significant Train Tracks (#29 and elsewhere on the Map). Although there is nothing special about train tracks, on the contrary, a rail yard without tracks would look strange; they are an important visual and technical element. A selection of the most significant Train Tracks should be PRESERVED on-site (some of those leading from the south to and from the Turntable and Round House, and connecting them with the workshops). Other Train Tracks that also demonstrate the use of the site could potentially be PRESENTED, while a large portion of Tracks could be REMOVED.
- Babbit Shop (#12 on the Map) and Welding Shop (#13 on the Map). These are two modest and small structures, used as different kinds of workshops. They were later connected with each other (the connecting structural element is suggested to be demolished, i.e. REMOVED). The two shops represent smaller-scale activities that took place in buildings other than the larger Machine Shop and Boiler Shop, therefore PRESERVATION is recommended.
- South Washroom (#20 on the Map). It is recommended that the South Washroom be PRESERVED whereas the North Washroom (#19) be REMOVED.
- Waste & Paint Room (#21 on the Map).
- "Pissoires" (not indicated on the Map). We also recommend the PRESERVATION of at least one bank of the very unusual metal urinals, since they were especially designed for the site, and represent a human aspect of the place.
- Infrastructure Elements (not indicated on the Map). Since rail yards are not simply architectural heritage, but rather infrastructure and Industrial Age heritage –the architectural elements are not the only ones to be PRESERVED and

HISTORIC RESOURCE KEY

1 FIRE STATION
2 MACHINE SHOP
3 CRANE RUNWAY INCL. LYE VAT SHED
4 BOILER SHOP
5 TANK SHOP/ TENDER REPAIR SHOP
6 FLUE SHOP
7 CANOPY
8 CAB PAINT SHOP (LATER, CWE SHOPS OFFICE)
9 BLACKSMITH SHOP
10 STOREHOUSE
11 PLATFORM
12 BABBIT SHOP
13 WELDING SHOP
14 TRANSFER TABLE
15 ROUNDHOUSE (ORIGINAL LOCATION)
16 TURNTABLE
17 SHEET METAL HOUSE
18 PATTERN HOUSE
19 NORTH WASHROOM
20 SOUTH WASHROOM
21 WASTE & PAINT RMS.
22 MOTOR CAR GARAGE
23 FIRE RUNWAY
24 POWER HOUSE (ORIGINAL LOCATION)
25 WATER RESERVOIR
26 WELDING GAS LINES
27 SMOKESTACK
28 HISTORIC POWER HOUSE (ORIGINAL LOCATION)
29 TRAIN TRACKS

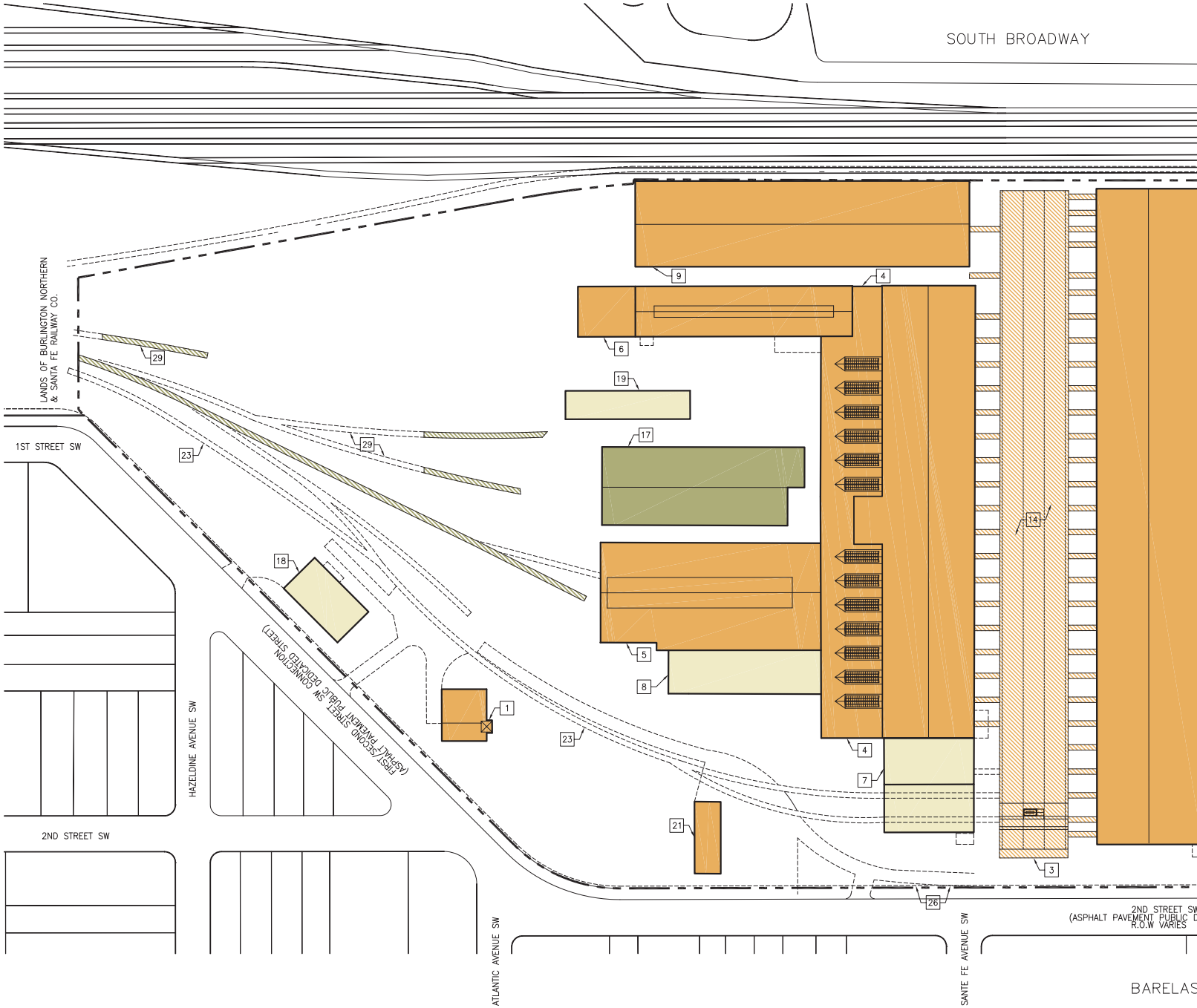
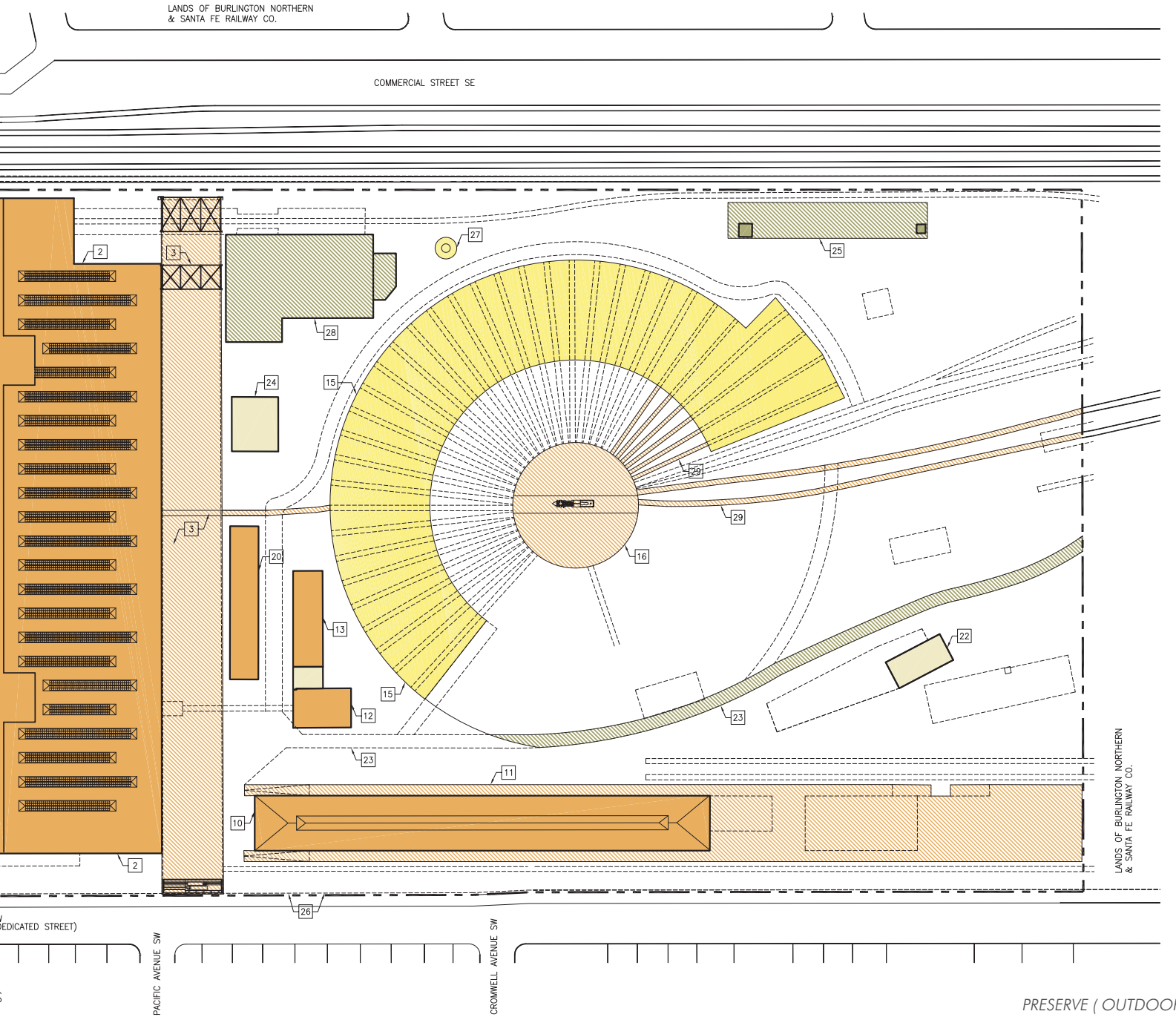
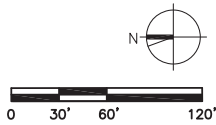


TABLEAU 3: Historic Preservation & Adaptive Reuse Standards Diagram





PRESERVE (OUTDOOR ELEMENT SHOWN HATCHED)
PRESENT (OUTDOOR ELEMENT SHOWN HATCHED)
RECONSTRUCT
REMOVE

PRESENTED, as opposed to REMOVED. Therefore, at a phase beyond the new Master Development Plan, PRESERVATION of some of the Infrastructure Elements, such as pipes and cables, along with the structural materials carrying them is recommended. Such Infrastructure Elements, together with the Tracks, connected all the built components, and were the "circulatory system" of the entire place.

10.2.2 Present

Being an important part of the story, but the element has been removed, or is planned to be removed, for various reasons. Its "presentation" on-site can be through a sign, paved or marked footprint, photo and explanation on a wall, etc. On the site, there are elements of relatively high historic value (for the understanding of the functioning of the site), but either in a very poor state of preservation, or already REMOVED; or else being a later addition that is hiding more important parts of the complex, and there is a desire for it to be REMOVED. Such structures listed below should be PRESENTED:

- Sheet Metal House (#17 on the Map). This wooden shed was used for storage of metal sheets and for moving them mechanically to their work stations.
- Fire Runway (#23 on the Map).
- Water Reservoir (#25 on the Map). This underground storage space and water reservoir is historically significant, being the only source of water on the site. It is therefore suggested for PRESENTATION as a concrete platform, possibly underground.
- Original Power House (#28 on the Map). Although the original structure was previously demolished, due to its functional importance and connection with the proposed RECONSTRUCTED Smokestack (Ref. to Category #3) it is suggested that it be PRESENTED, by its footprint, on the original location (even if completely or partially underground).

10.2.3 Reconstruction

On the site, there are elements of very high cultural value and significance, without which the functioning of the place cannot be understood; and/or the element's contribution is important to the integrity of the site. These structures were demolished, but have good documentation and sufficient remains on the site to allow for a certain kind of RECONSTRUCTION, while permitting modern interpretation. The reconstruction will be on the original footprint, will have some volume, but will not be identical to the original structure (it is a symbolic reconstruction). Such structures are listed below as:

- Roundhouse (#15 on the Map). The Roundhouse was one of the most important, impressive, and visually strong structures on the site. The reinstatement of its physical existence on the site is very important, and this is why it is suggested for RECONSTRUCTION (it footprint, shape, and volumetric space – not a replication of the original).
- Smokestack (#27 on the Map). The Smokestack was seen from quite a distance and became an iconic symbol of the site. Its reconstruction should mainly represent the idea of a high, vertical element, rather than accurate replication. The Smokestack was part of the Original Power House (Ref. to Category # 2).

10.2.4 Remove

Remove, leaving no physical trace. This applies to a structure or other element that does not contribute significantly to our understanding of the history of the site. Such structures as listed below are:

- Canopy (#7 on the Map). Originally an open structure, consisting of a roof supported by several columns. The Canopy functioned as the place to test the locomotives, and was later altered by adding partition walls, to become a paint shop.

- Cab Paint Shop/later converted to CWE Shops office (#8 on the Map). It covers the long (western) façade of one of the important and impressive structures (the Tank Shop/ Tender Repair Shop).
- Pattern House (#18 on the Map).
- North Washroom (#19 on the Map). If the South Washroom (#20) is preserved, the North Washroom is recommended to be removed as it is in need of major structural repairs.
- Motor Car Garage (#22 on the Map). A small workshop structure.
- Power House (#24 on the Map). This modern structure replaced the Original Power House which was demolished. It has no cultural significance. (See recommendation for the PRESENTATION of the Original Power House).

10.3 Design Features

In keeping with the goals and policies stated in Section 5 and with the aforementioned Vision Statement, the Concept Plan seeks to preserve and adaptively reuse the vast majority of historic resources on site. The successful revitalization of these structures represents the cornerstone of the redevelopment effort and is the foundation upon which all the following site organization concepts and design features are based.

The following sub-section provides design concepts and recommendations for new infill development. The following concepts and diagrammatic sketches represent basic ideas about how to organize the site rather than specific architectural solutions per se. Likewise, images from other locales are used to convey a design *sensibility* rather than a literal design response.

10.3.1 Rebuild Iconic Structures

Concept: Important iconic elements of the Rail Yards that had previously been demolished should be rebuilt in order to re-establish the original organization of the site.

As the first organization strategy for site infill development, the Master Plan advises the rebuilding of the Roundhouse and Smokestack features as important elements to the original conception of the site. The reconstruction will be on the original footprint, will have the same volume, but will not be identical to the original structure. As such, it is intended as a symbolic reconstruction permissive of a modern interpretation.



RAIL YARDS, HISTORIC ROUNDHOUSE AND SMOKESTACK



View from atop SMOKESTACK



SMOKESTACK

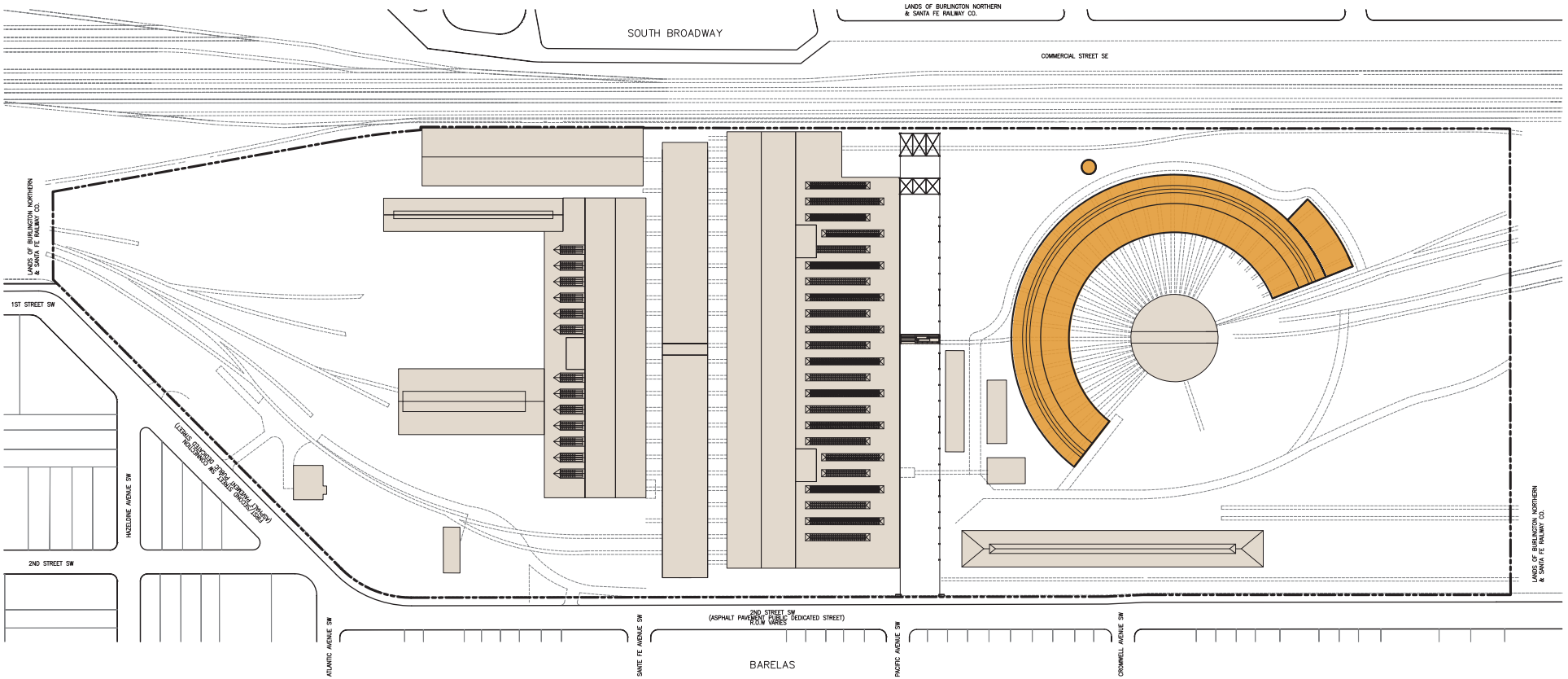


Figure 8: Rebuild Iconic Structures Diagram

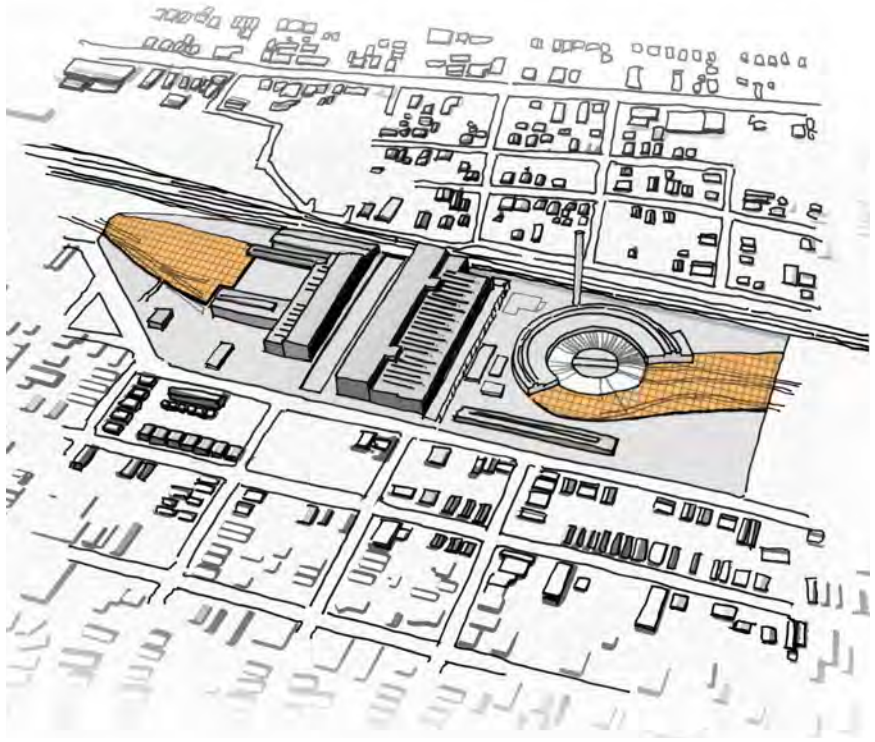
10.3.2 Paseo

Concept: The Rail Yards should be unified into a cohesive and interconnected whole.

The Paseo is the tissue that unifies the site plan, and integrates the Rail Yards with the city. It is the primary planning component for the new Rail Yards project.

The Paseo is a concept for infill development. It is a low, single volume, building, approximately 14 feet in height, with a flat roof that doubles as a public plaza. There are two Paseo buildings proposed, North and South, located on the only large areas available for development that do not impact any historic resources recommended for Preservation. Due to their low profile, the Paseo buildings allow for additional buildable area to be created without impacting views to and from the historic structures; they are auxiliary buildings that will increase the technical functionality of the site that might otherwise be limited by use of the historic structures alone. The plan shape of the Paseo buildings is determined by using historic rail lines or fire road. Public access to the Paseo roof decks would be provided via generous stairways and landscaped mounds along 1st and 2nd Streets.

The Paseo's conceptual purpose is to inter-connect events and event options on the site, to link existing buildings with new buildings, to facilitate pedestrian movement north/south and east/west on the site and to encourage pedestrian engagement of the myriad new opportunities the Rail Yards project will provide.



PASEO

NOTE: ALL DIAGRAMS ARE CONCEPTUAL



Piazza del Campo, Siena, Italy



Las Ramblas, Barcelona, Spain

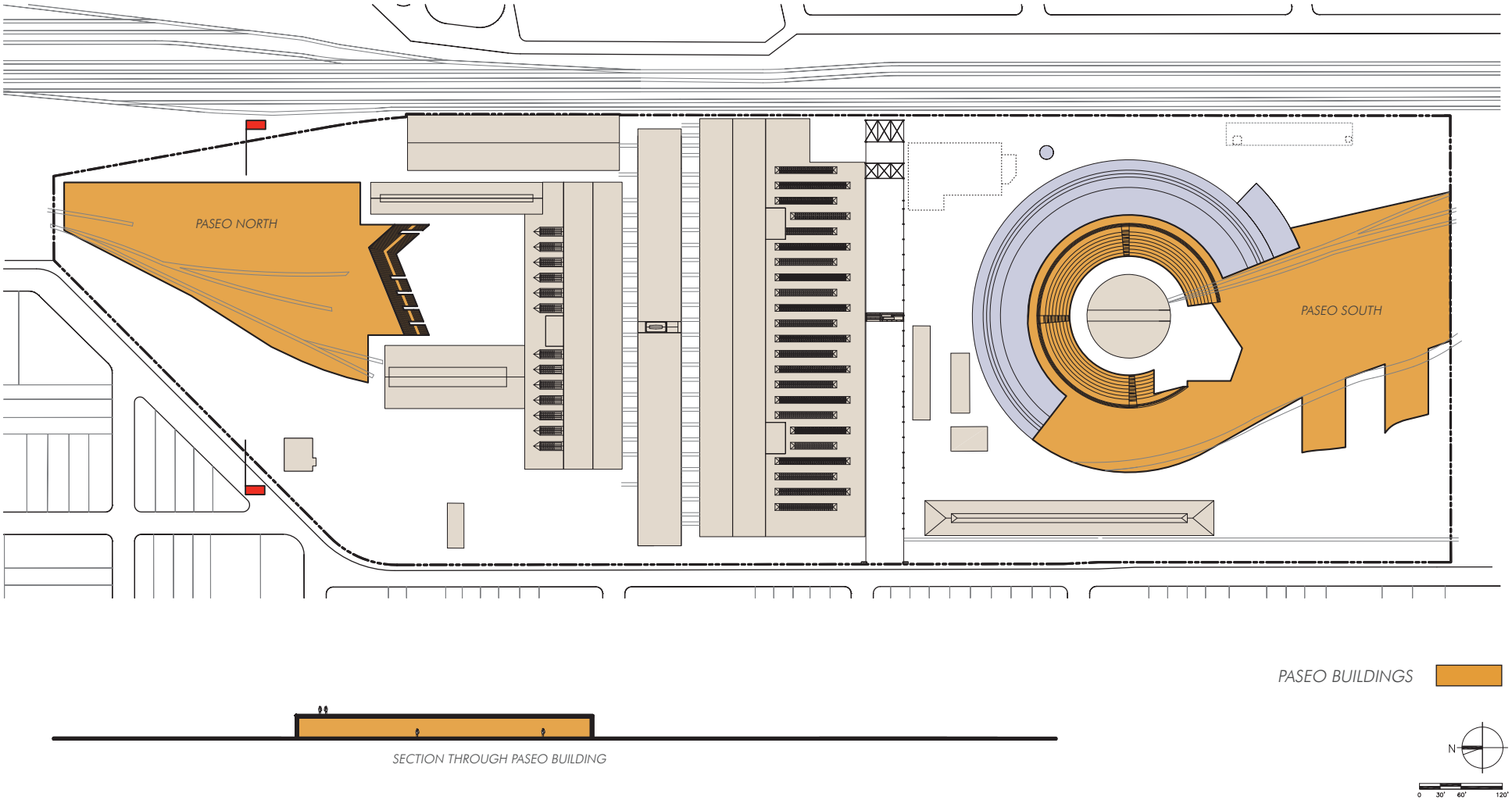


Figure 9: Conceptual Paseo Building Diagram

10.3.3 Subterranean Parking

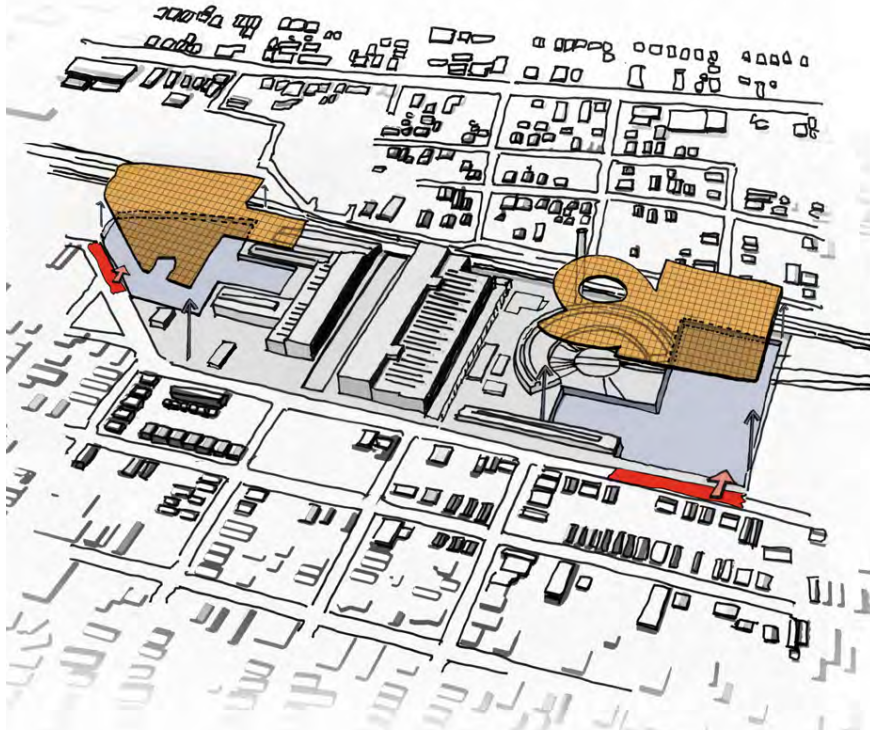
Concept: The Rail Yards should be free of visible parking.

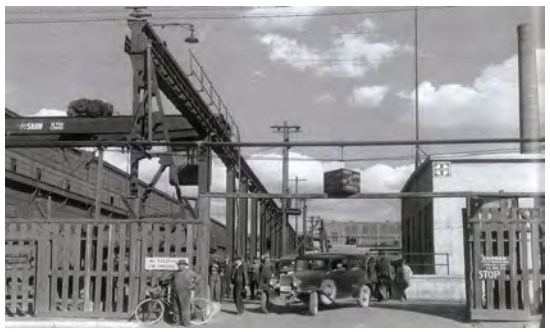
The Paseo concept and the subterranean parking concept go hand in hand. Given the historic nature of the site, visible surface parking should be avoided and instead should be contained in a below grade structure.

Given the increased cost of subterranean parking and the relative high water table, a one-level only structure is proposed which will result in a site that will be considered underparked by current City parking standards. The provision of parking for the Rail Yards site, however, must seek a balance between satisfying market needs on the one hand and minimizing traffic impacts on the other. Deficiencies in on-site parking should be mitigated by use and encouragement of alternative means of transportation.

The Concept Plan addresses this issue by locating subterranean parking at the North and South ends of the site immediately below the proposed Paseo buildings, leaving the center portion of the site focused on pedestrian, bicycle and transit access. The Paseo buildings are located on the only two portions of the site that have open areas sufficient to construct an efficient parking garage. Building the parking garage and the Paseo buildings together will result in an economy of cost and schedule.

The specific location for vehicular ingress/egress to the parking structures should be determined by the ultimate configuration of the Paseo buildings and the use requirements thereof. Access points should be adequately spaced in order to allow proper vehicle queuing and to minimize traffic impacts to the Barelas residential community immediately to the west.

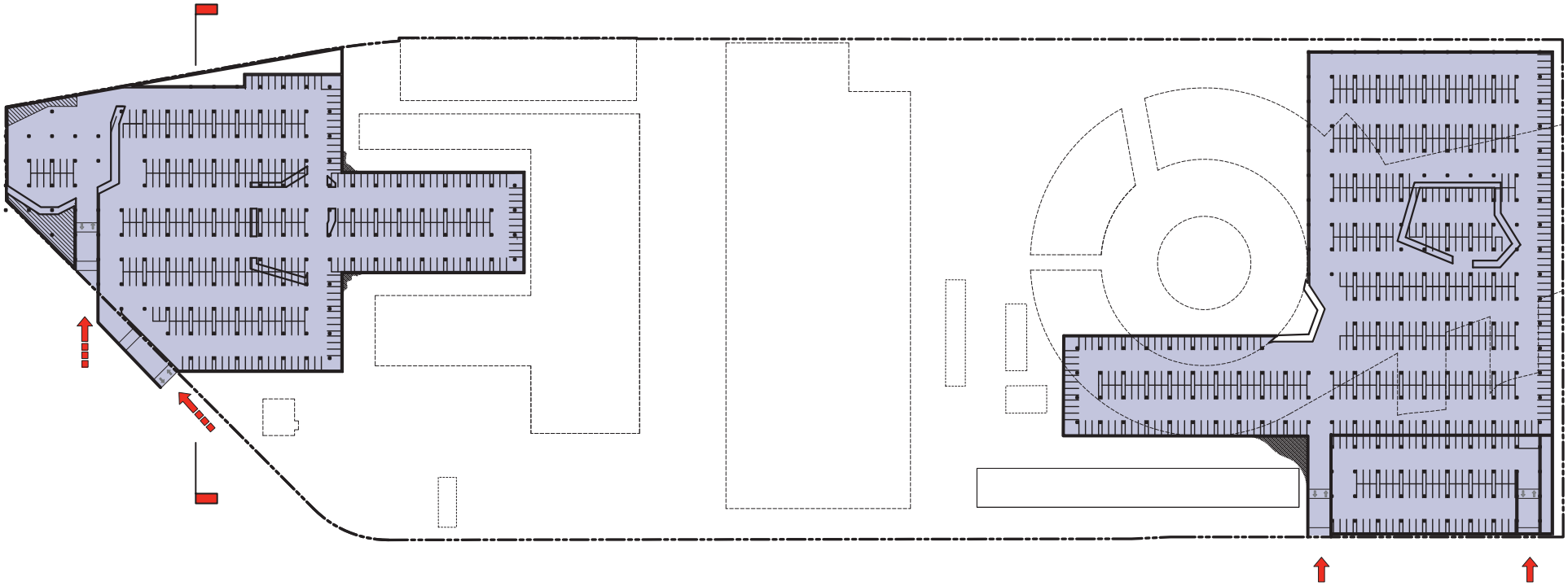




Historic Rail Yards Entrance



Rail Yards Entrance Today



NOTE: REFER TO SECTION 10, TABLEAU 8 - PRELIMINARY PHASE PARKING PLAN, FOR EARLIER PHASE PARKING CONCEPT.

BELOW GRADE PARKING

VEHICLE ACCESS



SECTION THROUGH PARKING

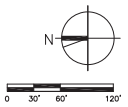


Figure 10: Conceptual Below Grade Parking Diagram

10.3.4 Acoustic Mounds

Concept: The Rail Yards should have an inviting edge that balances the needs of future users with those of the neighboring communities.

Summary: The Acoustic Mounds is one possible concept for how to treat the edges of the Rail Yards site. The Historic edge was once bounded by a wooden fence that limited site access to Rail Yards employees and visitors only. By contrast, the Concept Plan intends the site grounds to be completely open for public access; however, there remains a need for limited visual and acoustic privacy between potentially disparate and incompatible uses.

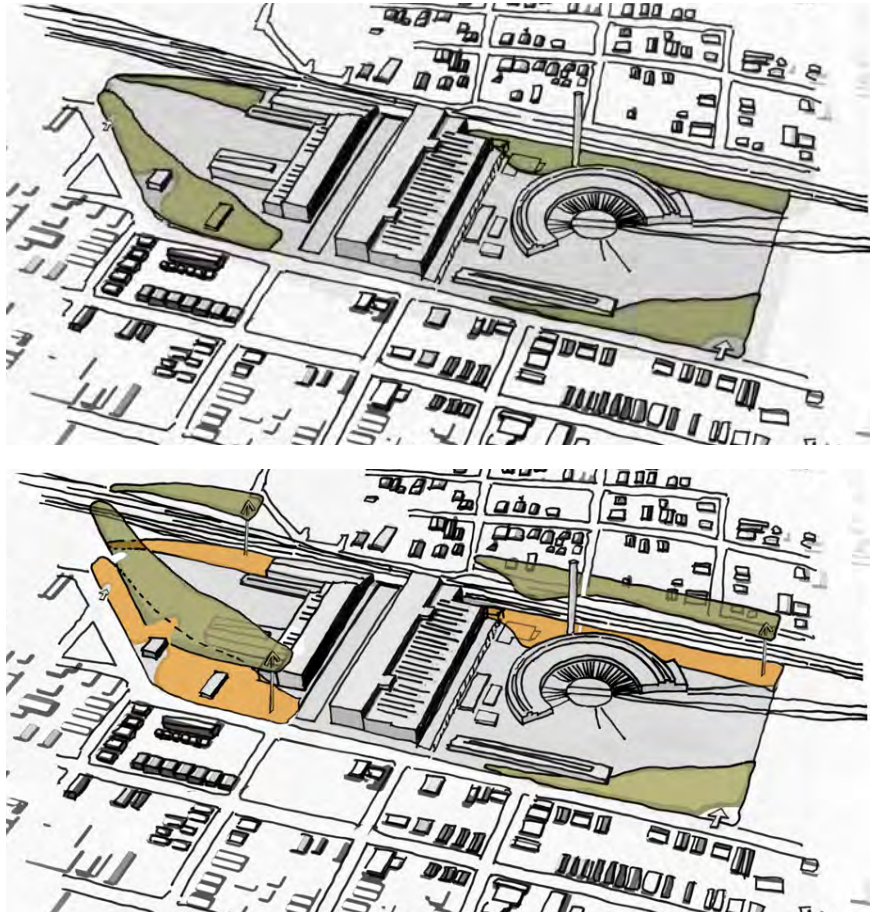
The Acoustic Mounds provide a flexible, 'soft' edge that can be sculpted to achieve desired levels of privacy without creating the effect of a barrier and without impacting views to and from the site.

The Mounds unify the site by use of a common visual language (earthwork, landscape) that does not belong to a 'style' of architecture that might conflict with the historic vocabulary of the buildings.

The Mounds are publicly accessible; they can be walked on, sat upon, hollowed out and inhabited for both public uses (e.g. retail) and infrastructural uses (e.g. screening of mechanical equipment).

The Mounds are positioned just inside the east and west property lines of the site, and run essentially north/south, ascending on the west from the sidewalk perimeter and on the east from the retaining wall adjacent to the active rail lines to the Mounds' apex, then down to tree-lined pedestrian walks (Meandering Walk) running north/south at grade, roughly paralleling the Mounds.

By virtue of their shape and positioning, the Mounds organize the nearly half mile long frontage of the Rail Yards site by providing directed points of entry and egress.



ACOUSTIC MOUNDS
USABLE AREA UNDERNEATH THE MOUND



Etowah Mounds, Dahlonega, GA



Lascaux Caves, Dordonne Valley, France

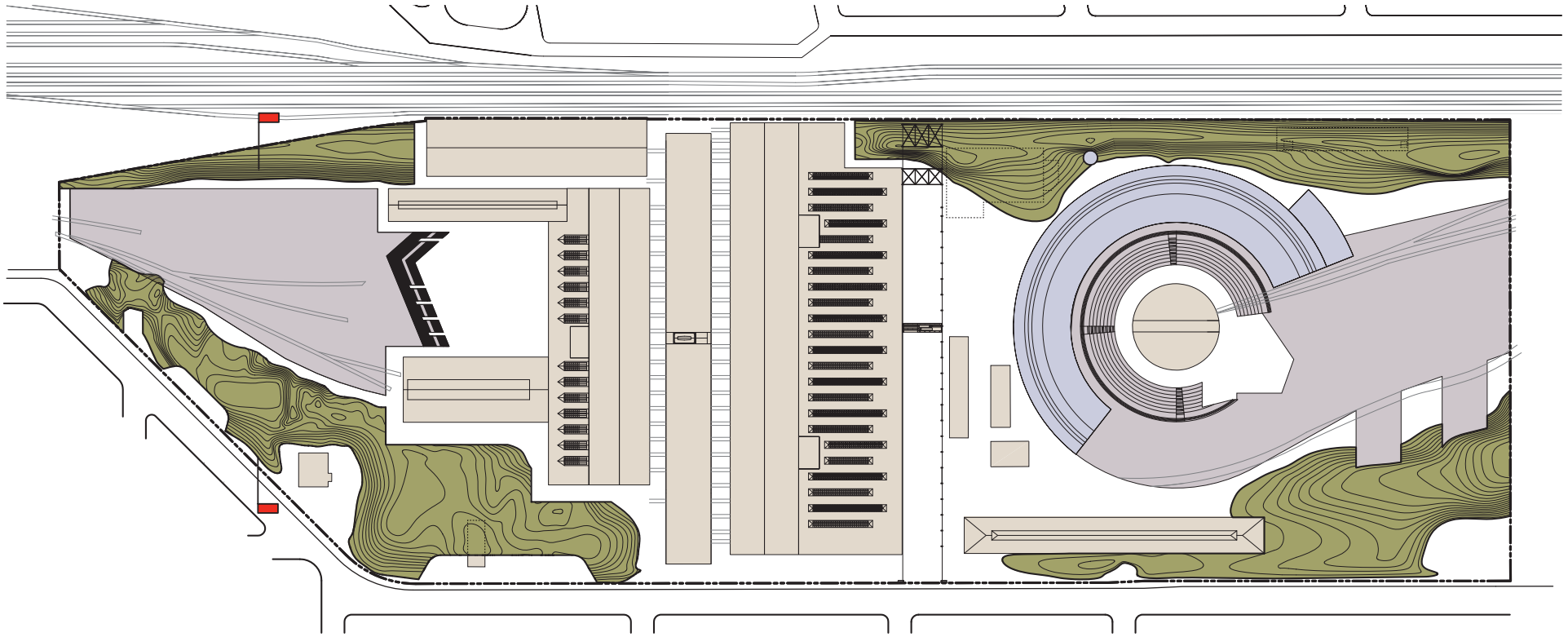


Figure 11: Conceptual Acoustic Mounds Diagram

Details: The Acoustic Mounds demonstrate one possible edge treatment concept for framing the Rail Yards boundaries and providing a buffer from the surrounding uses in an interesting and playful manner. The mounds should have flexibility of being either planted, hardscape, or a mixture of both. The mounds may be planted with mostly drought-resistant species to provide recreational spaces, as well as enhance their visual screening function. Deep-rooted native and naturalized plants are preferred for infiltration and reduced maintenance. Including native and naturalized grasses with fibrous root systems will help alleviate erosion concerns along the steep slopes that may occur on the mounds. Depending on design, there may be an opportunity to provide turfgrass in areas with slopes that are amenable to mower access. The use of grasses should signal the transition from more manicured to wilder areas of the landscape. Low and high water use turfgrasses should be defined separately from each other with a shrub buffer. Plant materials on the Acoustic Mounds should be kept below eye-level to accentuate the rolling line of the mounds. The only exception on plant heights is on the down slope of the Acoustic Mounds where trees may line the edges. Trees will follow the meandering path on the interior side, but will serve to frame and enhance views on the 2nd Street side. Seating opportunities may be provided via slopes as well as fixed or movable furnishings. Some slopes on the mounds may be terraced to provide integrated seating. The slopes should generally follow the City of Albuquerque's design standards for slope requirements for safety and erosion control. Where the edges of the Acoustic Mounds meet grade (typically hardscape), swales should be identified as needed to address water harvesting drainage, as well as to supplement the irrigation for plants.

Accessibility of the Acoustic Mounds would vary across the site dependent on their internal use (when applicable) and the grading necessary to transition safely to surrounding hardscape areas. Terracing is encouraged to soften slopes and provide seating opportunities near activity centers. Slopes will require vegetation to prevent erosion and beautify the landscape. However, steep areas are difficult to mow (turfgrasses) and maintain. Heavy ornamental grass cover is encouraged as it is better at slowing water runoff than is turfgrass, but both are acceptable means for binding soil to the slope.

Although 1.5% slope is preferred to maximize recreational uses, turfgrass may be installed on landscapes up to 5:1 slope for areas to be used for passive seating and similar uses. In addition, irrigation sprinklers that typically serve turfgrass areas should be kept at least five feet from walls, windows and other architectural structures to prevent alkali staining on surfaces.

Noise: Given its proximity to neighboring residential areas and the intention for the Rail Yards to become a vibrant mixed-use community



Tiguex Park, Albuquerque, smaller scale precedent for Acoustic Mound concept

with a significant public presence, noise mitigation is a critical design concern for the project. The proposed Acoustic Mound design feature is a direct response of this need to control potential noise pollution emanating *from* the site and likewise to control noise pollution emanating *to* the site from outside sources such as the active BNSF railway immediately to the east. The Acoustic Mound is a buffering and absorptive mechanism.

Air Quality: During the planning process, community concerns were voiced regarding the potential for the Acoustic Mounds proposed along the east side of the site to exacerbate existing air quality problems associated with rail traffic along the BNSF rail lines. Specifically it was mentioned that BNSF trains are often left idling on the tracks adjacent to residential communities in South Broadway and San Jose neighborhoods, leaving the diesel exhaust to accumulate. The concern is that the Acoustic Mounds will create a tunnel effect that further traps these fumes from escaping, thereby worsening an already significant problem.

It is recommends that further analysis of the existing problem be undertaken and the potential effects of the Acoustic Mounds be studied, including the possibility that the Mounds might ameliorate the condition by creating a landscape edge that can absorb harmful pollutants. It might also be determined that existing practices by the BNSF rail line need further review and evaluation.

The Mounds remain a conceptual idea only for treatment of the project edges. They are designed and intended to be a positive community asset that help solve many different site considerations. If they are determined to have negative air quality impacts, alternative edge concepts will be explored.

10.3.5 Connectors

Concept: The Rail Yards should be stitched into the fabric of the community.

Primary points of access are located by extending the existing city street grid onto the project site. At each location where east/west running streets terminate along the project north/south boundary, a Connector is created. The Connector takes many forms depending on the specific site condition, as follows:

The Perpendicular Walk is the primary east-west Connector that extends Santa Fe Avenue onto and through the Rail Yards site, adjacent to the historic Transfer Table, and on into the South Broadway neighborhood via a proposed pedestrian bridge over the active rail lines. Conversely, the Santa Fe extension also provides a pedestrian connection west, from South Broadway through the site to historic Route 66 along 4th street in the Barelas neighborhood. The Perpendicular Walk provides an operational synopsis of the area's history; trains, rail yards, cars, diverse sociologies; unified along a single axis. It is the conceptual heart of the project.

The proposed Transit Plaza is a north-south Connector that runs between Santa Fe and Pacific Avenues along the western edge of the site fronting the Machine Shop.

The Fire House Plaza is a Connector created at the intersection of Atlantic Avenue and 2nd Street that provides Public Open space surrounding the historic Fire House building. This Connector is likely to increase in size due to the abandonment of 1st Street between Atlantic and Hazeldine Avenues.

The proposed Cromwell Avenue at-grade pedestrian rail crossing is a second Connector for the South Broadway community that will align with the proposed rebuilt Smokestack and connect to the rebuilt Roundhouse.




Spanish Steps, Rome, Italy


Ponte Vecchio, Florence, Italy

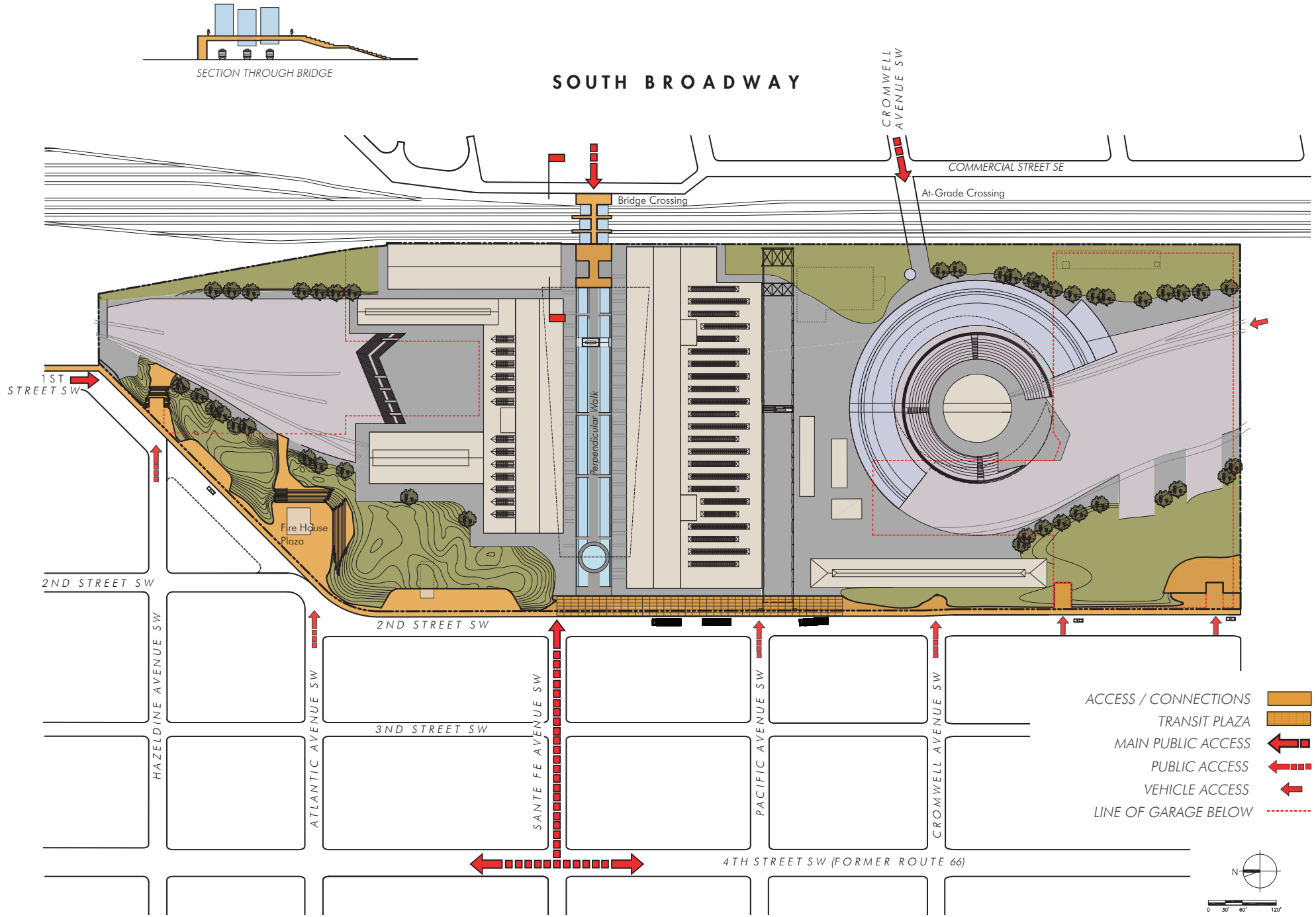


Figure 12: Conceptual Connector Diagram

10.3.6 Public Open Space

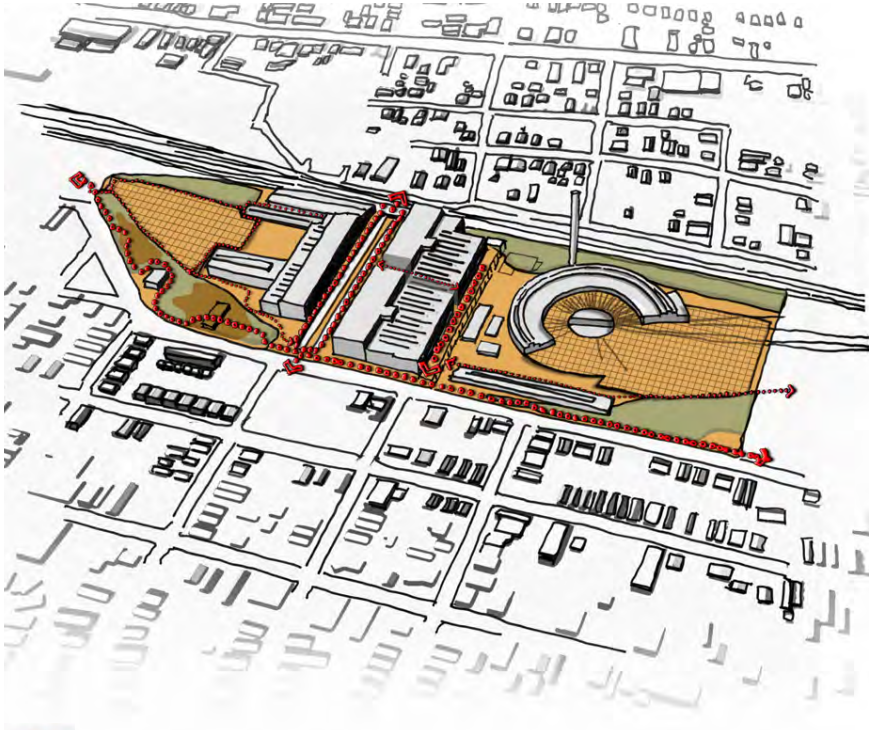
Concept: The Rail Yards should provide ample and varied opportunites for public open space.

The Concept Plan provides for a significant amount of public open space in a variety of different spatial configurations: broad and open public paseos, tree-lined meandering paths, vertical courtyards, long pedestrian promenades, circular amphitheater, etc. The concept is to offer different ways of interacting with the site that yields flexibility in public programming.

Visitors should be able to traverse the site freely in order to view the various historic structures and understand their original purposes and interrelationship.

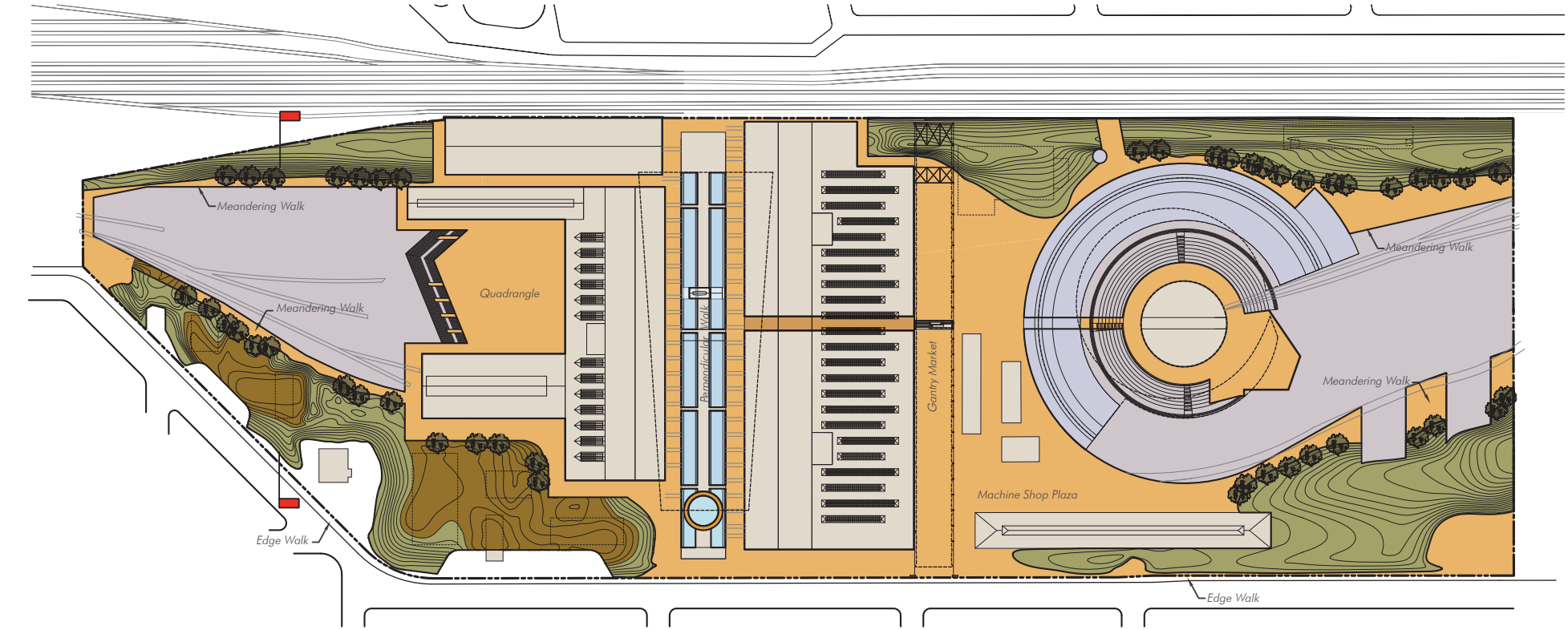
Public spaces are connected by two North-South walks; the Edge Walk that follows along the 1st and 2nd Street sidewalk and the tree-lined Meandering Walk that follows the space created between the Paseo Building and Acoustic Mound. In addition to the Paseo and Perpendicular Walk spaces previously referenced, additional public spaces are as follows;

- Quadrangle: A new event space formed by the conjunction of the Flue Shop on the east, the Boiler Shop on the south and the Tank Shop on the west with the new Paseo on the north. The Quad opens to the Paseo and center city with a large public stair/seating which descends south from the Paseo Level to the Quad floor.
- Machine Shop Plaza: Extending south from the Machine Shop and useable for exhibits and/or open air markets. The current plan proposes to re-use the Bridge Crane apparatus attached to a steel frame that extends across the south elevation of the building. The crane and steel frame support a retractable Glass Canopy.
- Turntable Commons: South of the Machine Shop, the new Roundhouse intersects with Paseo South to form an enclosed and partly covered performance courtyard, with ramps and stairs to the public seating and Turntable stage area.




Bosque, Albuquerque, NM


Public Arcade, Milan, Italy





SECTION THROUGH ACOUSTIC MOUNDS AND OPEN SPACES

PUBLIC OPEN SPACE
REFLECTING POOL
PUBLIC ACCESS
SHADE TREE

N

0 30' 60' 120'

Figure 13: Conceptual Public Open Space Diagram

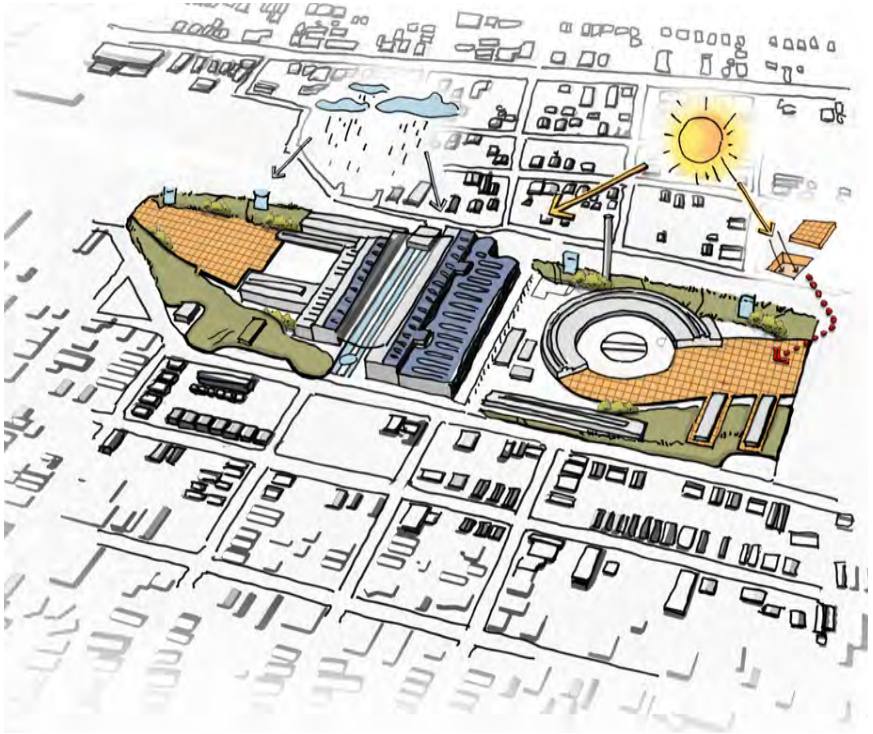
10.4 Sustainability

Concept: The Rail Yards should be a model for sustainable design practices.

New construction should be designed to meet or exceed U.S. Green Building Council (USGBC) standards and where possible, the retrofit of the existing structures should accommodate green building features as well. Specific concepts for the introduction of sustainable design features and practices into the Concept Plan are as follows:

10.4.1 On-site Power Generation (Photovoltaic Panels)

The Concept Plan recommends that all south facing roofs of existing historic structures be retrofitted to include arrays of Photovoltaic (PV) panels capable of generating on-site electricity. As evidenced by the growing PV market in the area, Albuquerque has an ideal climate for PV generation due to a high number of clear sunny days coupled with a lack of extreme summer temperatures found in other desert type communities at lower elevations. PV generated electricity is valuable because it is most efficient during times of peak electricity demand (A/C requirements during hot summer days) thus shaving peak loads. Careful attention will be required to ensure the panels are well integrated into the roof lines. Finally, electrical vehicle charging stations located in the subterranean garages may be able to utilize on-site electrical generation.

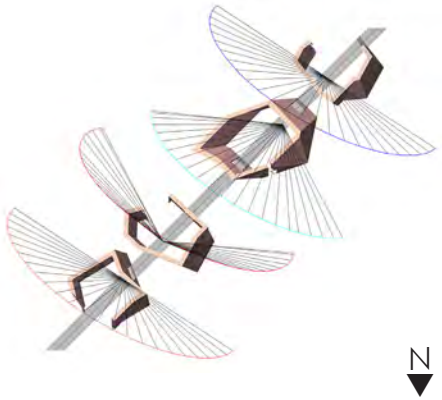




Cantalloc Aqueducts, Nazca, Peru



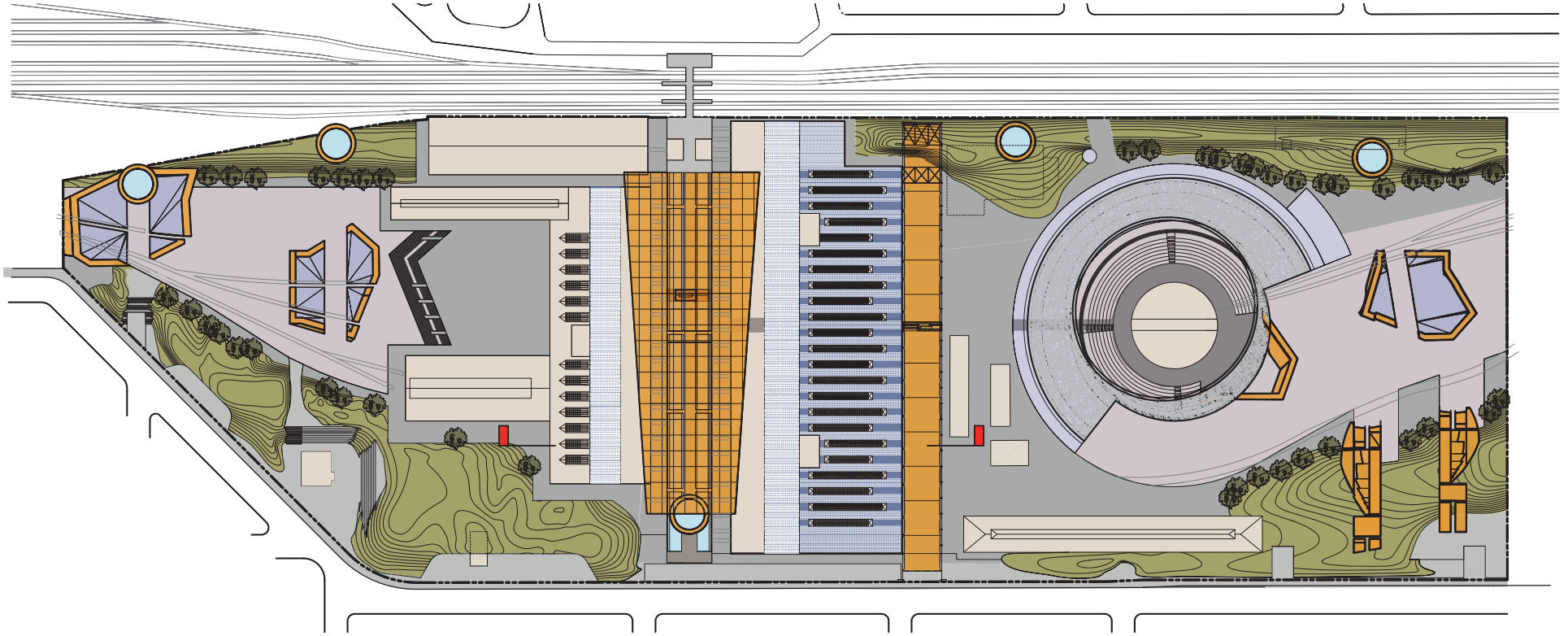
Acequia, White Mountains, NM



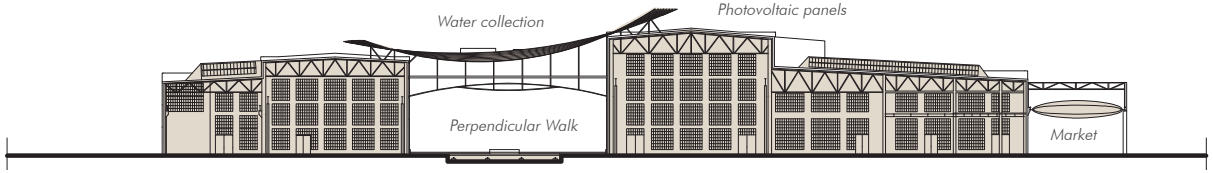
COURTYARDS,
Daylighting defined by the path of the sun



Anasazi Kiva, Mesa Verde, CO



SUSTAINABLE FEATURES
PHOTOVOLTAIC PANELS
GREEN ROOFS



SECTION THROUGH HISTORIC SHOPS SHOWING SUSTAINABILITY FEATURES

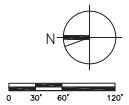


Figure 14: Conceptual Sustainability Features Diagram

10.4.2 Water Conservation

Given Albuquerque's low precipitation of approximately 9" of rain per year, it is critical that water conservation be a major consideration in all future development. Accordingly, the Concept Plan recommends the collection and retention of on-site water into cisterns that may be used for future irrigation of drought tolerant landscaping atop the Acoustic Mounds and along the tree-lined Meandering Walks. Given a total site area of 27.3 acres, there is potential for a large catchment area. The cisterns themselves may become design elements for the project thereby reinforcing the importance of water conservation. In addition to catchment, all plumbing fixtures shall utilize the least amount of water allowable by code and where permitted, the collection and use of grey water for irrigation purposes shall be encouraged.

In order to facilitate collection of roof water and to provide cover over the Perpendicular Walk, a design feature called the "Glass Canopy" is proposed between the Machine and Boiler Shop buildings. The Canopy is an all-glass canopy supported by a light weight cable truss that will collect and distribute water to a proposed cistern and surrounding pool located in the trough of the Transfer Table.

10.4.3 Energy Efficient Construction/Green Roofs

All new construction should be designed to minimize heat loss/gain through building envelopes. Note that this is especially pertinent with regard to the rehabilitation of the historic structures which are largely clad in small single-pane glass windows set into steel window frames. In such cases, the requirements for energy conservation will need to be balanced with the historic preservation aspects of the project. For example, it may be necessary to create new building envelopes within the historic envelope thereby avoiding its poor thermal performance.

Along the lines of envelope performance, the Concept Plan recommends the use of Green Roof structures over the retail components along 2nd Street. A Green Roof is essentially a well-insulated roof that contains a vegetated outer layer that outperforms traditional roofing in terms of its ability to absorb and slowly re-radiate heat energy without creating the "Heat Island" effect found in many urban areas. Careful attention will be required to select plantings that are well suited to the particular Albuquerque climate.

10.4.4 Natural light & Ventilation

During the time of their original construction, the historic structures of the Rail Yards were considered pioneering achievements in the use of natural light and ventilation to provide superior working conditions. In keeping with this tradition, all new construction should be designed to maximize availability of natural light and ventilation in order to reduce power consumption and increase the quality of the working environment. The Concept Plan recommends the use of Courtyards to provide natural light and ventilation to spaces that would otherwise be too deep to achieve from perimeter access alone. The proposed Paseo buildings will be designed with perimeter glazing and operable windows.

10.4.5 Alternative Transportation

The Concept Plan is organized to prioritize pedestrian, bicycle, and transit connections to the project. Vehicle access to below grade parking structures is purposely relegated away from the center of the site such that these other forms of transportation can be unimpeded. Accordingly, a large transit plaza is proposed along 2nd Street immediately adjacent to the Perpendicular Walk between the historic Machine and Boiler Shop buildings, and may contain bike lockers, bike racks, benches, and other pedestrian amenities. Finally, in order to further encourage the use of alternative forms of transportation, the Master Plan recommends decreased parking requirements for anticipated uses and will encourage ride sharing.

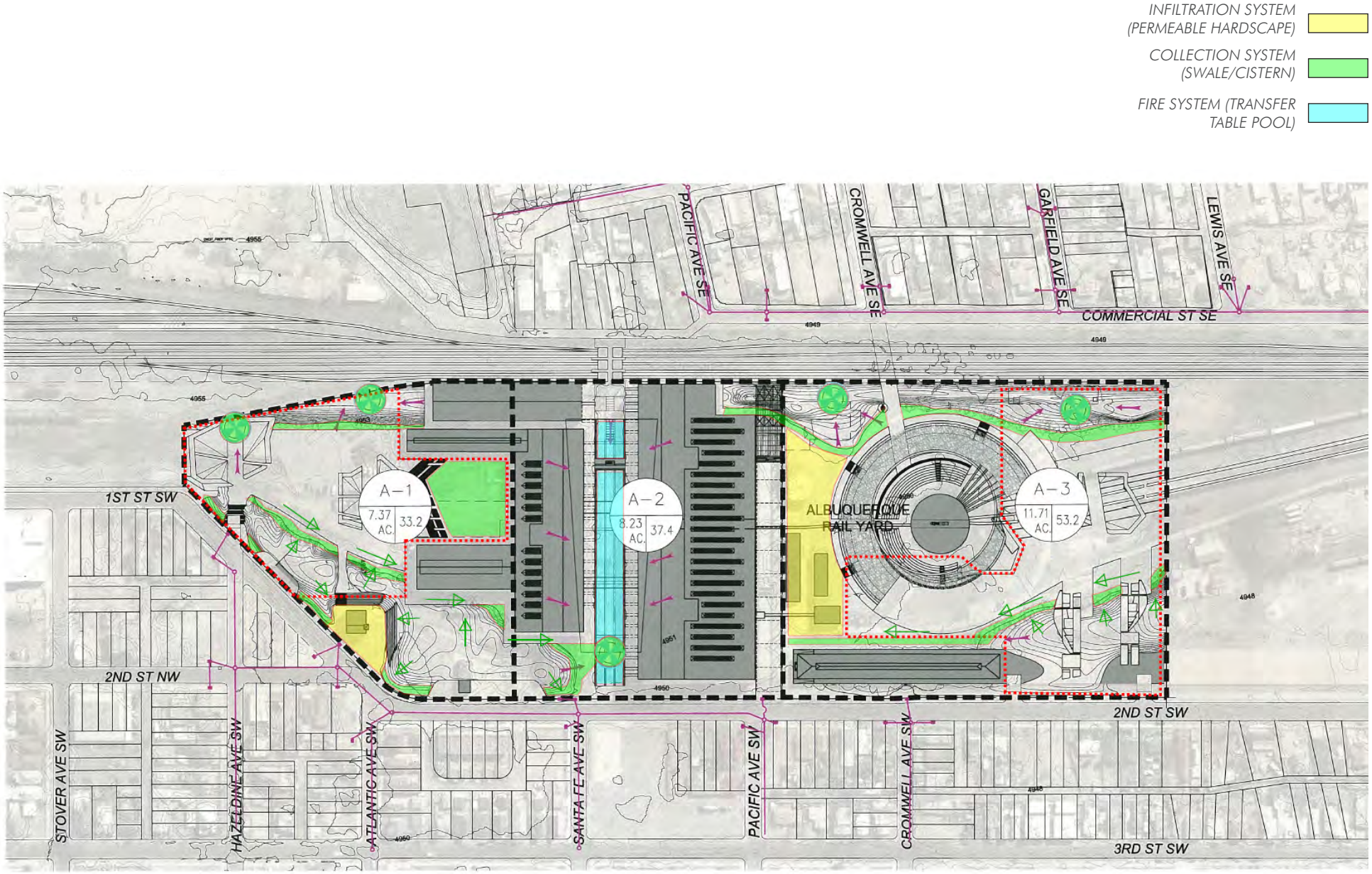


Figure 15: Conceptual Water Conservation Diagram

10.5 Parcel / Land Use Recommendations

Given the large size of the Rail Yards site (27.3 acres), the complexities involved in adaptively re-using the existing historic buildings, and the resulting need to construct the project in a phased approach, the Concept Plan assumes the creation of 10 distinct parcels that each will have their own design features and land use recommendations. The resulting parcelization will enable distinct parcels to be developed and permitted according to the schedule requirements of a particular tenant need, thereby making the process more nimble and responsive to market conditions. Parcelization will also allow distinct use types, (e.g. Workforce Housing or Public Open Space), to be broken off from the larger project in order to be executed by a different development entity as may be desired.

10.6 Land Use Characterizations

Creating a vibrant and successful mixed-use community on the Rail Yards site will in large measure depend on the type, location and organization of uses on the site. Accordingly, the Concept Plan identifies preferred land use types and locations based on a thorough analysis of project goals, site context, and community input.

Based on the Parcel organization described above, the site can be understood to be divided into 4 basic use zones; Business, Cultural, Retail, and Housing. In addition, each of these use groups contains a significant amount of open space available for public use. The following descriptions provide a qualitative summary of each of the primary use categories:

BUSINESS

At its peak of operation, the Rail Yards once provided jobs to nearly 25% of the residents of the City of Albuquerque; it was the principal economic engine for the region. The development model for the Rail Yards MDP is likewise founded on a jobs-centered approach that intends to create a robust innovation-based and creative office business community. This use designation will be largely housed within the historic structures but will also extend northerly toward the Downtown city center, providing a connection between the two job centers. A successful business tenancy will be the economic engine that will provide for the costly adaptive reuse and ongoing maintenance of the historic structures, thereby preserving them for future generations.

Specific Business/Professional use types may include but are not limited to the following; Creative Office, Professional Services, Training/Upper Level Education, Research and Development, Media, and Light Manufacturing.

CULTURAL

The entirety of the Rail Yards site is understood as a cultural center of major significance to the City, State, and Country. It is the intent of the MDP that visitors to the site will be able to traverse the grounds in their entirety in a way that was never previously afforded due to the walled perimeter required by its heavy industrial past.



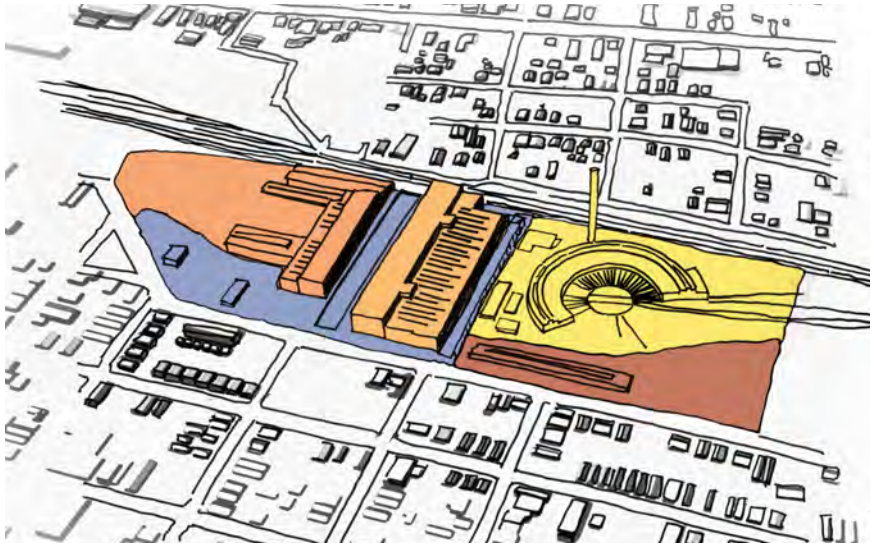
Shukhov Tower, Moscow, Russia

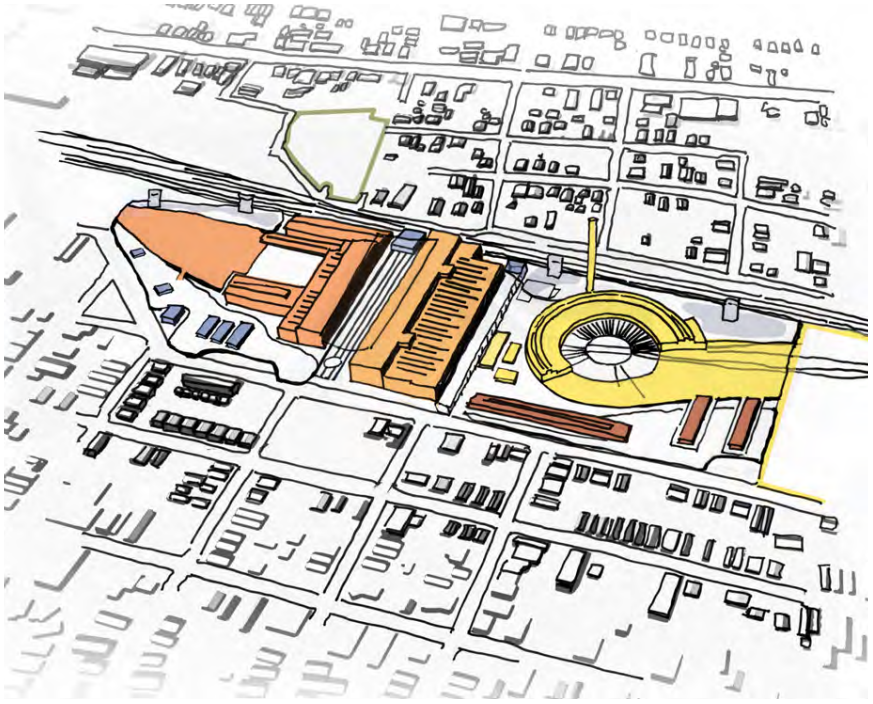


Samitaur Tower, Culver City, CA



ATSF 2926 Restoration, Albuquerque, NM





CULTURAL
BUSINESS
BUSINESS / R&D
HOUSING / CULTURAL
RETAIL/ OPEN SPACE

Dedicated Cultural Uses will be centered about the historic Turntable and rebuilt Roundhouse at the South of the site with the Machine Shop and Storehouse buildings as backdrops. The South portion of the site retains the greatest physical connection to the functioning BNSF Rail Lines and will therefore tie the dedicated Cultural facilities directly to the history of the Site.

Specific Cultural use types may include but are not limited to the following; Museums (including WHEELS), Performing Arts, community centers, Accessory retail facilities, and public gathering spaces. Museum functions may include such work as the restoration of historic artifacts such as the work currently underway by the New Mexico Steam Locomotive & Railroad Historical Society to fully restore the Baldwin 4-8-4 Steam Locomotive, AT&SF 2926.

RETAIL

Primary dedicated retail zones occur along the western periphery of the site along 2nd Street and along the proposed Railroad Bridge that will connect the site to the South Broadway community. The scale of the proposed retail is commensurate with that along 4th Street in the Barelas community and will be designed to complement rather than compete with neighborhood businesses.

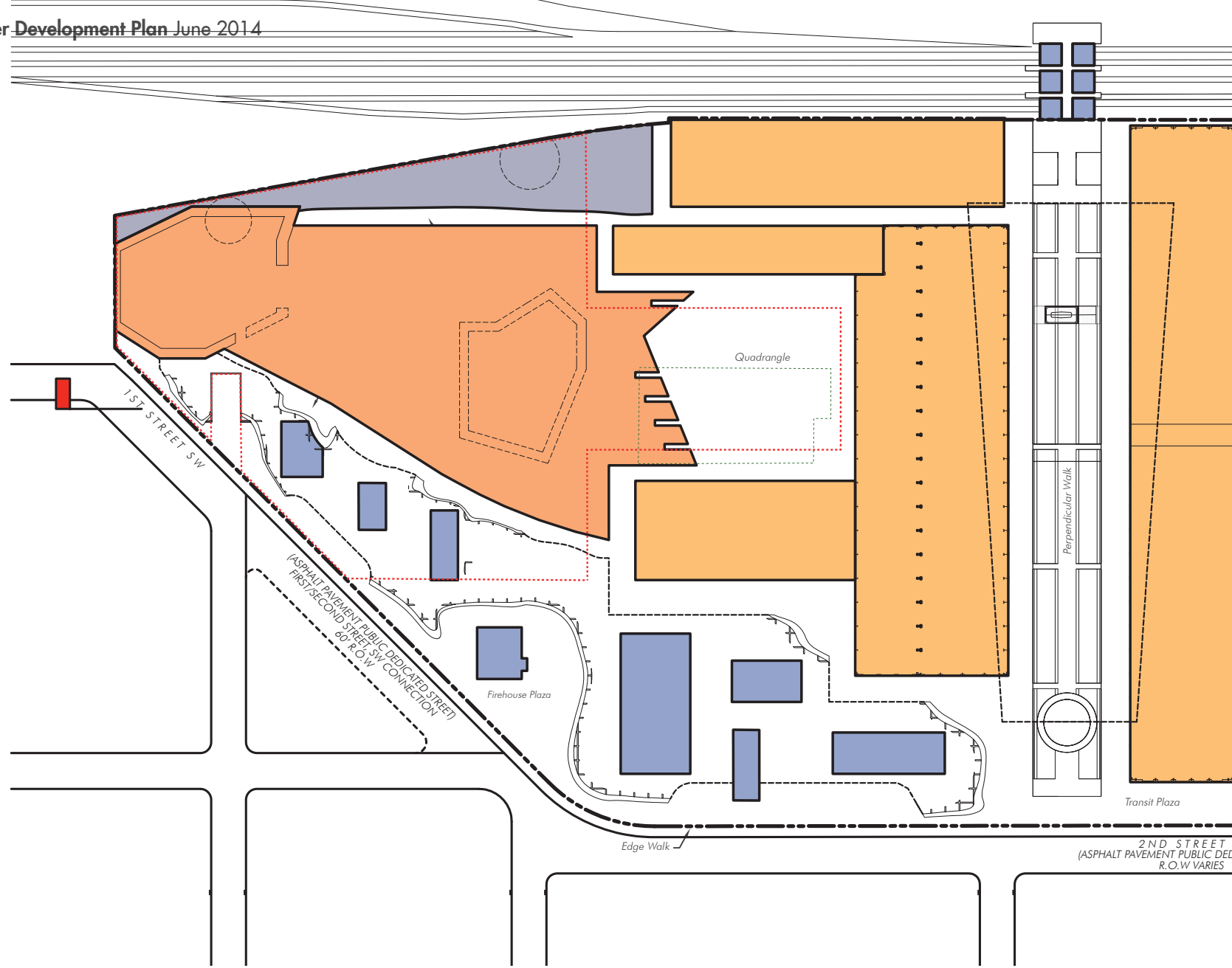
Specific retail use types may include but are not limited to the following; Restaurant, café, growers markets, artisan shops, business services, galleries, and hospitality/boutique hotel uses.



Cliff Palace, Mesa Verde, CO

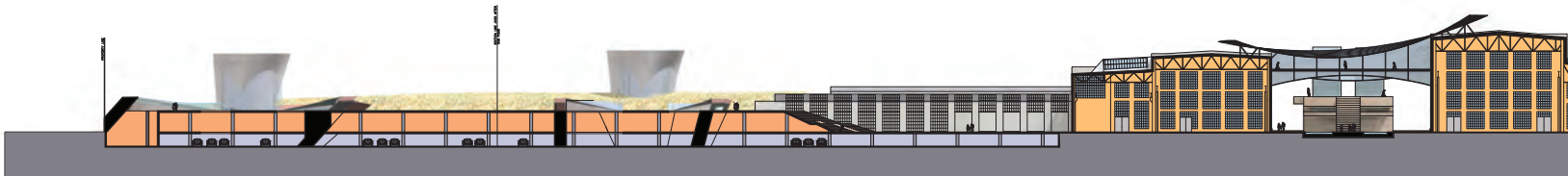


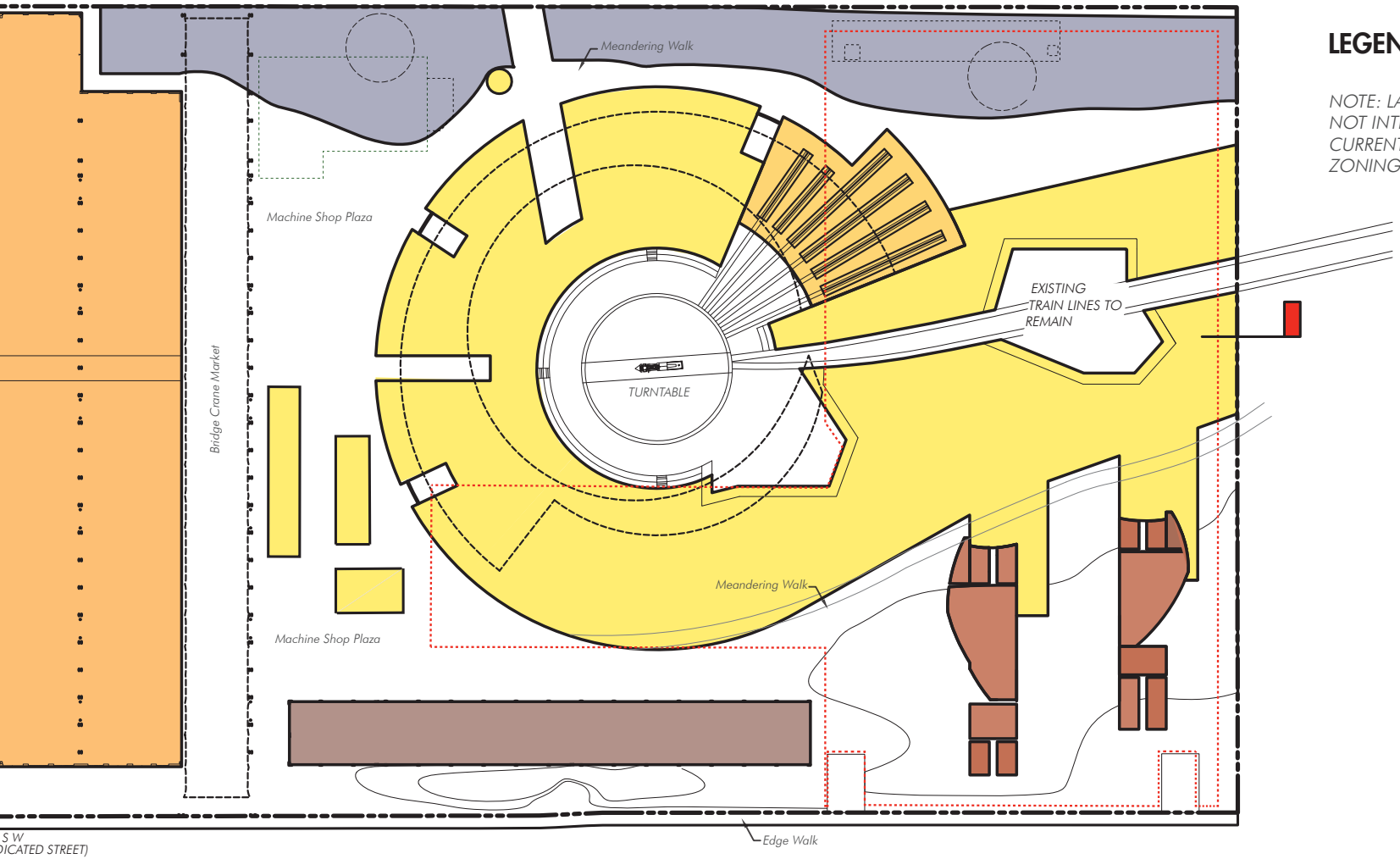
Taos Pueblo, NM



NOTE:
Design Features shown are for illustrative purposes only and are not regulatory features of the MDP document.

TABLEAU 4: Land Use Diagram

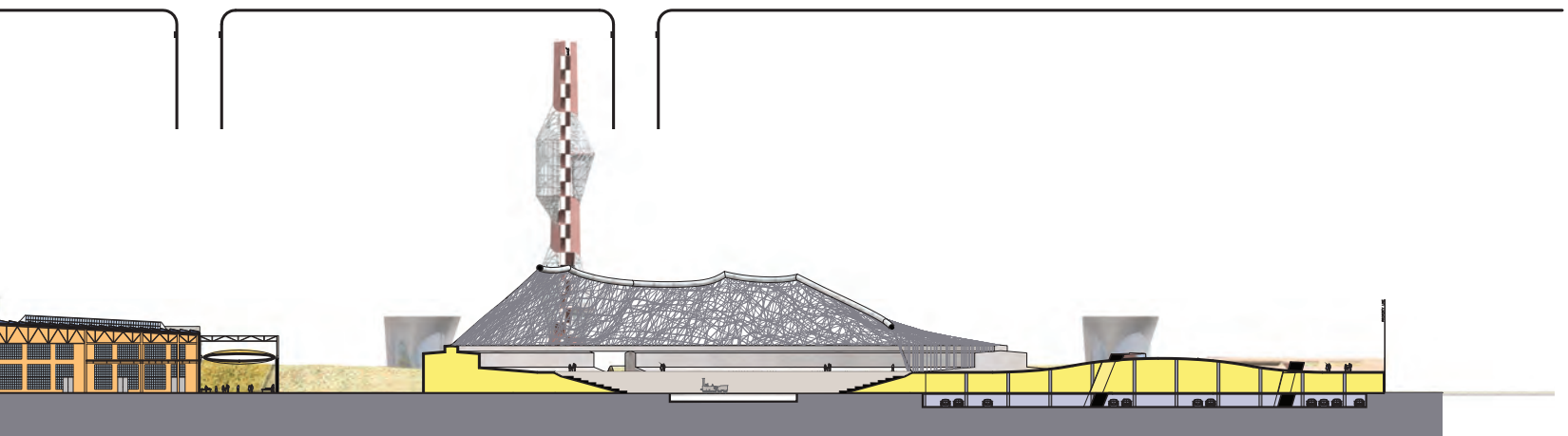


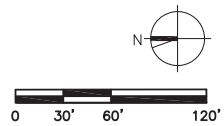


LEGEND

NOTE: LAND USE RECOMMENDATIONS ARE NOT INTENDED TO RESTRICT LAND USES CURRENTLY APPROVED BY THE UNDERLYING ZONING DESIGNATION FOR THE SITE, SU-HLS.

- *BUSINESS USES*
- *CULTURAL USES*
- *WORKFORCE HOUSING*
- *RETAIL*
- *OPEN SPACE*
- *UTILITY BUILDING*
- *LINE OF GARAGE BELOW*





WORKFORCE HOUSING

The proposed Workforce Housing use is located at the southwest corner of the site adjacent to 2nd Street and bordering the proposed Cultural zones to the north and east which are understood as compatible uses. Given the minimum requirement of 30 units, care should be taken to ensure that the scale of the proposed Housing is commensurate with that contained in the adjacent residential neighborhoods.

10.7 Parcel Characterizations

Parcel recommendations and qualitative characterizations of each of the proposed 10 parcels are as follows;

Parcel 1

Parcel 1 is intended as the cultural center of the Rail Yards site and contains uses of cultural significance to the community such as museums, performing arts venues, community centers, accessory retail functions and public gathering spaces. Parcel 1 is conceptually centered about the historic Turntable and contains the proposed rebuilt iconic structure of the Roundhouse which is connected with the proposed Paseo South building. The historic Turntable must remain in active operation since adjacent landowner BNSF retains an easement for its use. The design of future cultural facilities shall not limit or preclude access to or use of the Turntable.

Any future use that requires access to the existing railway, such as the WHEELS Museum or a rail equipment maintenance facility, shall have access to the tracks and Turntable contained on Parcel 1. As such, land between the Turntable and the Storehouse is an appropriate area for future expansion of the WHEELS Museum.

Parcel 1 also contains a series of smaller historic buildings such as the Welding and Babbit Shops and the South Washroom facility that are intended to be adaptively re-used and included as part of the cultural life of the project. Together with Parcel 4, the area containing these structures is characterized in the Concept Plan as part of the Machine Shop Plaza.

Since Parcel 1 contains the largest portion of undeveloped land within the larger Rail Yards site, the Concept Plan recommends one level of subterranean parking to be constructed coincident with development of above-grade cultural facilities. Given the lack of parking opportunities across the balance of the site, it is anticipated that parking created on Parcel 1 will likely serve parking needs for adjacent parcel use requirements (e.g. Parcels 3, 4 and 5). Access to the parking facility from 2nd Street would be provided by an easement across Parcel 3 as shown on the Parcel plan.

Parcel 2

Parcel 2 is the proposed site for the 30 units of Workforce Housing. The proposed Housing structures are positioned informally across the top of the southwestern most Acoustic Mound leaving substantial portions of the landscape for use by inhabitants, adjoining neighbors and visitors.

It is recommended that parking for Parcel 2 be accommodated similarly to Parcel 1 in a subterranean garage with separate and dedicated access from 2nd Street. Parcel 2 contains a major portion of the historic cast-in-place concrete Platform structure that was used as the primary loading dock facility for the Rail Yards. -

Parcel 3

Parcel 3 contains the historic Storehouse structure and is the current home of the WHEELS warehouse. Similar to Parcel 1, Parcel 3 supports culturally significant uses and, due to its significant frontage along 2nd Street, will act as the public face of the onsite cultural facilities to the larger community. Parcel 3 is uniquely situated to contain cultural facilities connected to those anticipated to be

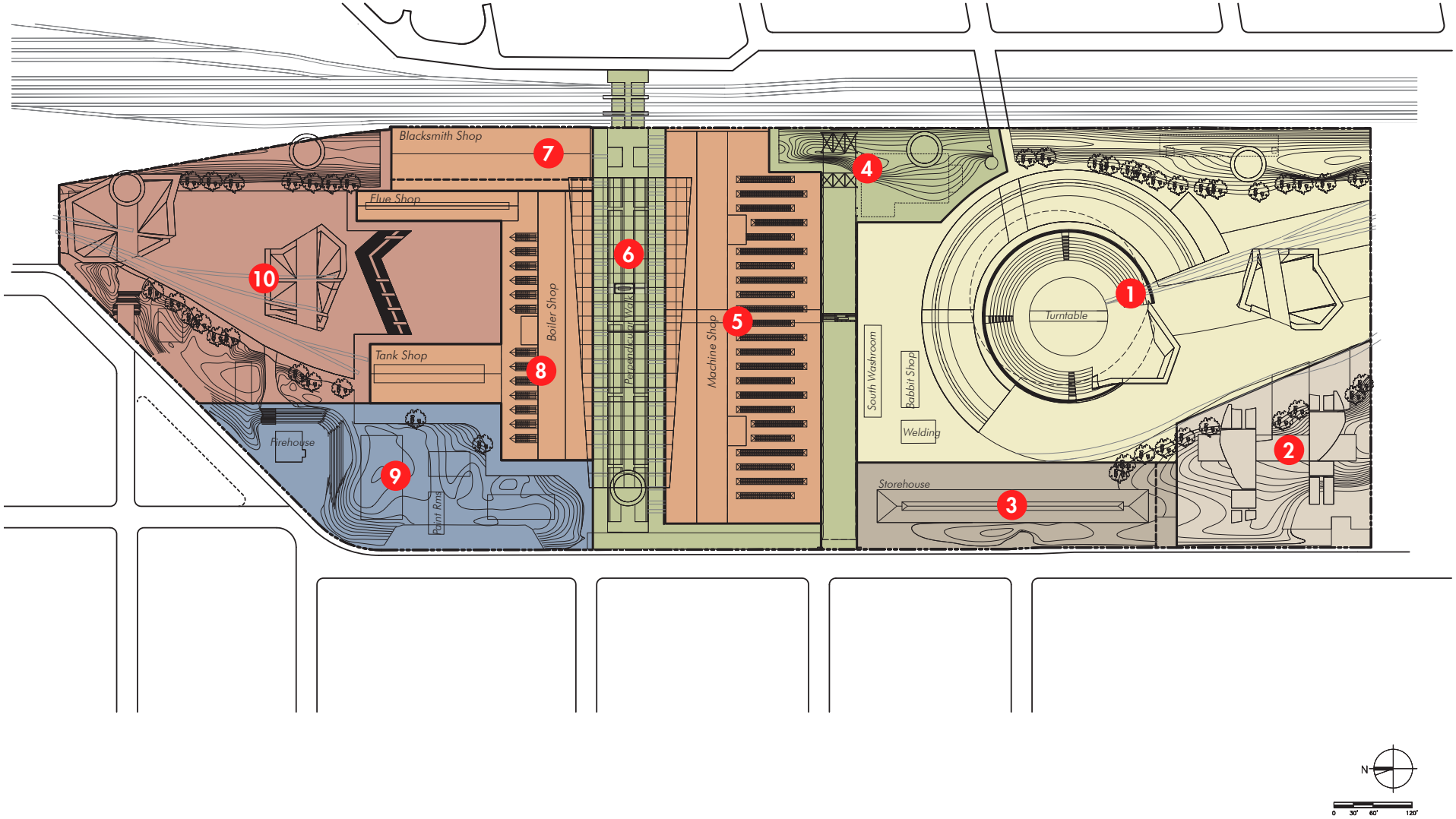


Figure 16 : Conceptual Parcelization Diagram

developed in Parcel 1 or, alternatively, be adaptively reused as housing to relate to existing development across 2nd Street and the Workforce Housing anticipated to be developed on Parcel 2 to the south. Should the WHEELS Museum in the future move its operations, the Storehouse is an appropriate location for adaptive reuse for other cultural uses or housing that may include live-work.

Parking for Parcel 3 users will be accommodated within the subterranean structure on Parcel 1 with an easement provided across Parcel 3 for access.

Parcel 4

Parcel 4 is primarily a public open space parcel that includes the area immediately south of the Machine Shop contained beneath the historic Bridge Crane and its steel support colonnade. At the eastern edge adjoining the Rail Line, Parcel 4 widens to include the footprint of the original Powerhouse recommended for Presentation and the original Smokestack recommended for Reconstruction.

Parcel 4 is intended as a major public assembly area supporting a covered outdoor Farmers/Artisan Market and Public Events Venue under the Bridge Crane and an Educational Center located adjacent to the proposed Smokestack. Such a location on the South side of the Machine shop will have maximum daytime and nighttime visibility from drivers along the Avenida Cesar Chavez overpass and will provide direct access to the Barelas neighborhood through the entry portal that once served as the primary entrance to the historic Rail Yards site. The proposed location will draw people onto the site, provide potential visitors to the existing WHEELS warehouse on Parcel 3, and will provide easy vehicular access for deliveries from 2nd Street to support the Public Market concept. Locating the market adjacent to the historic site entrance will also serve to reacquaint Albuquerque residents with the site. Similar to Parcels 1 and 3, Parcel 4 is understood as a community oriented parcel that supports and complements the cultural uses on the site.

Parcel 5

The boundary of Parcel 5 coincides with the footprint of the historic Machine Shop building and is connected to the 2nd Street public right-of-way through the two adjacent public open space parcels immediately to the north and south of the building. The Machine Shop building is the largest and most significant structure at the Rail Yards site and once revitalized is envisioned to anchor the innovation based and creative office tenancies that will drive successful development of the project. A pedestrian connection running north-south through Parcel 5 is proposed to allow the public to experience the interior volume of the Machine Shop. The connection is currently shown at the east/west center of the Machine Shop, however its ultimate location may be adjusted to accommodate other site constraints and considerations. Parking for Parcel 5 will be accommodated in the proposed structure contained on Parcel 1, and like all such off-site parking in the proposed development, will require some sort of covenant or easement agreement between parcels that will ensure availability of longterm parking.

Parcel 6

Parcel 6 is a primary open space parcel known as the Perpendicular Walk that is bounded by the historic Machine Shop to the south and the historic Boiler Shop and Blacksmiths Shops to the north. It is the heart of the project. Parcel 6 contains the historic Transfer Table structure that at one time functioned to transfer locomotive assemblies under repair laterally east-west across the site. The Transfer Table is a unique structure that is recommended to be adaptively reused as a water feature becoming the main focal point for the Perpendicular Walk that will become the primary east-west artery connecting the Barelas and South Broadway communities. The proposed Railroad Bridge is an extension of Parcel 6 to the east over the BNSF Rail lines, and to the west, Parcel 6 extends around the west façade of the Machine Shop to contain the central transit plaza, the front door of the project. Finally, Parcel 6 is to be covered by a transparent roof that will span between the existing structures providing protection from the elements.

Parcel 7

The boundary of Parcel 7 coincides with the footprint of the historic Blacksmith Shop building with the exception that also contains the 10' wide walkway immediately west of this building to be preserved as a pedestrian and utility access easement for adjacent parcels. Similar to Parcels 5 and 8, Parcel 7 is envisioned to house an anchor business tenancy. Parcel 7 will utilize Parcel 6 as its primary access easement to 2nd Street and will utilize the proposed subterranean parking contained in Parcel 10 to satisfy code parking requirements.

Parcel 8

The boundary of Parcel 8 contains the combined footprint of the historic Boiler Shop, Flue Shop, and Tank Shop structures. The three structures are currently linked to one another through interior connections thereby affording the possibility of a single tenant utilizing all three combined. Alternatively, Parcel 8 may be developed in a multi-tenant arrangement with common areas. Similar to Parcel 7, Parcel 8 gets access to 2nd Street via Parcel 6 and will be parked in Parcel 10 to the North.

Parcel 9

Situated north-south along 2nd Street, Parcel 9 is an appropriate place to integrate retail with housing as part of a mixed-use development. Primary features include the designated City Landmark Firehouse building and the proposed perimeter Acoustic Mound structures that are to be hollowed out to contain various retail shops and pedestrian walkways through the site. The Firehouse itself is intended to be converted to a restaurant/café use in order to reinforce the retail edge. The café is surrounded with a generous exterior plaza carved into the Acoustic Mounds providing additional seating and informal gathering spaces. Parcel 9 retail is intended to complement rather than replace any of the existing retail amenities along 4th street within the Barelas neighborhood.

Parcel 10

Parcel 10 completes the Northern portion of the site and is similar to Parcel 1 to the South except that its primary use designation is Business rather than Cultural. Parcel 10 contains the proposed Paseo North building and the subterranean parking garage below. As such, Parcel 10 is envisioned as an auxiliary parcel to Parcels 7 and 8 that contain historic structures and likewise may be less flexible with regard to development options. Uses contained in the Paseo North building are intended to complement those uses in the historic structures, e.g. laboratory space, training/education, or research and development. Parcel 10 also contains perimeter Acoustic Mounds and a retail zoned edge that will act as an extension of Parcel 9 to the South. Such retail uses may be more business oriented and may include options for limited on-site hotel facilities.

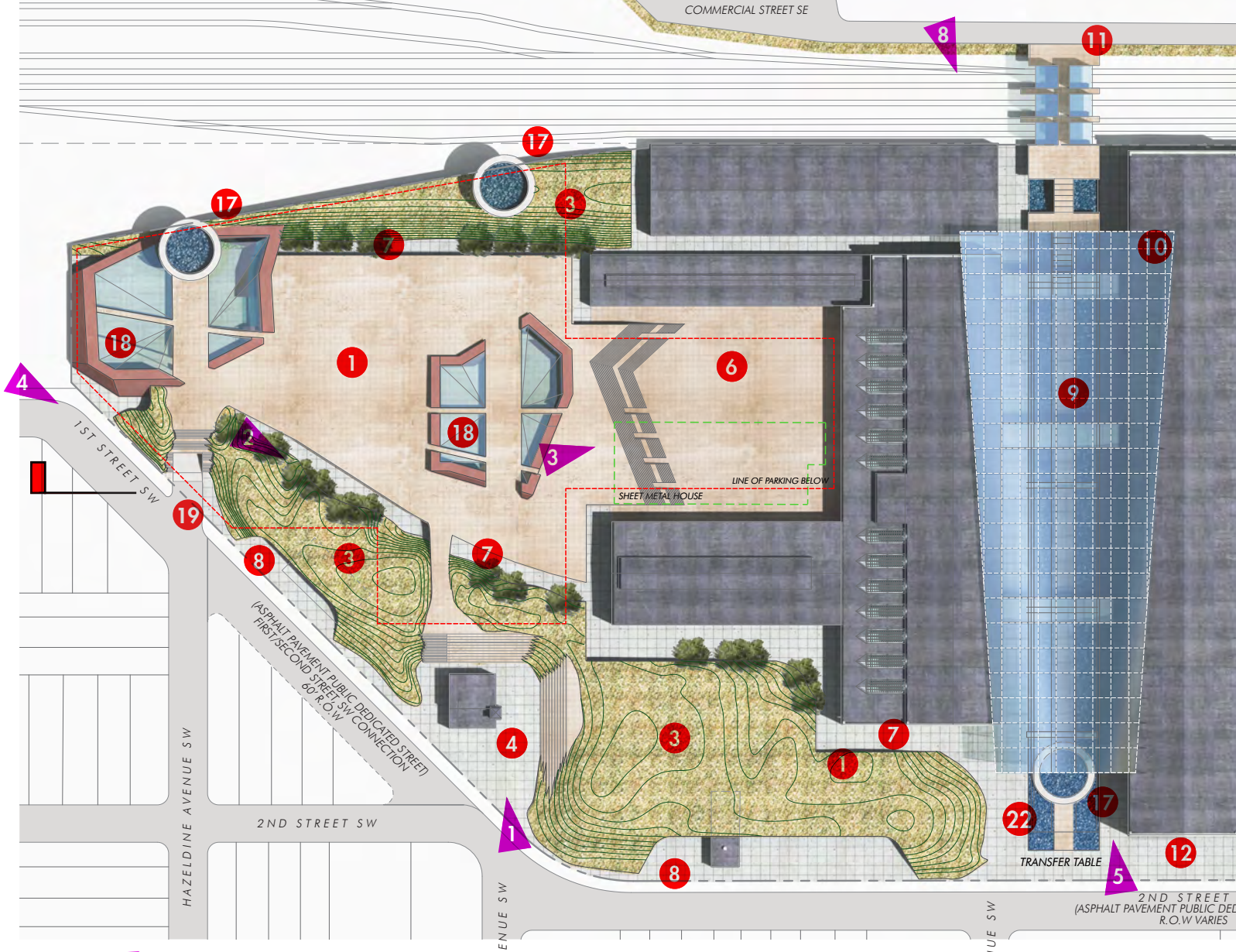
LEGEND

DESIGN FEATURE

1	PASEO NORTH
2	PASEO SOUTH
3	ACOUSTIC MOUNDS
4	FIREHOUSE CAFE
5	MACHINE SHOP PLAZA
6	QUADRANGLE
7	MEANDERING WALK
8	EDGE WALK
9	PERPENDICULAR WALK
10	GLASS CANOPY
11	RAILROAD RETAIL BRIDGE
12	TRANSIT PLAZA
13	REBUILT ROUNDHOUSE
14	REBUILT SMOKESTACK
15	TURNTABLE COMMONS
16	WORKFORCE HOUSING
17	CISTERN
18	COURTYARD
19	PARKING ACCESS
20	AT-GRADE CROSSING
21	BRIDGE CRANE MARKET
22	TRANSFER TABLE POOL

NOTE:

Design Features shown are for illustrative purposes only and are not regulatory features of the MDP document.

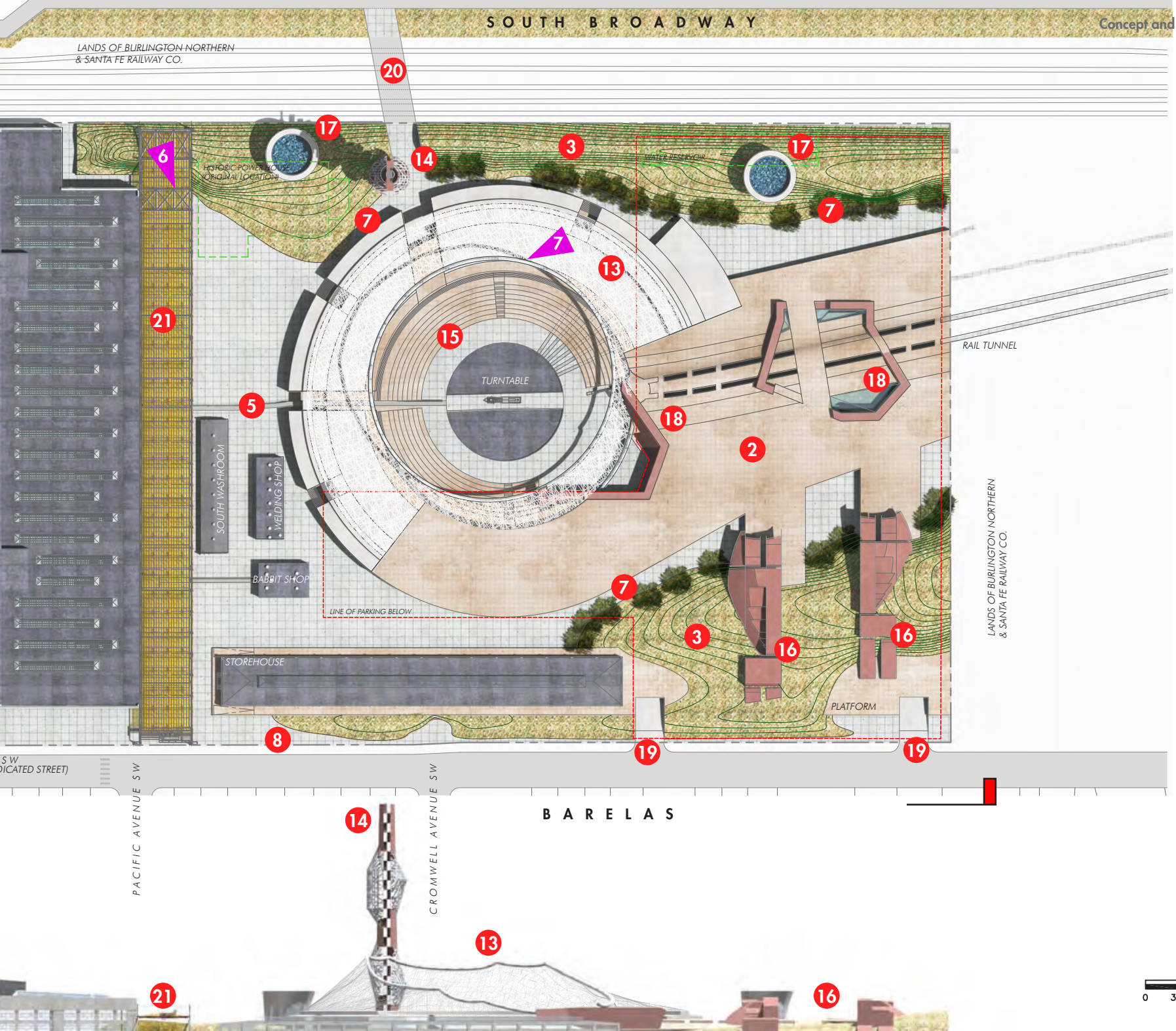


VIGNETTE VIEW REFERENCE

Note: Concept vignettes included on the following pages are intended to provide a sketch view of selected significant spaces envisioned by the Rail Yards Concept Plan.



Tableau 5: Illustrative Concept Plan


SOUTH BROADWAY
LANDS OF BURLINGTON NORTHERN & SANTA FE RAILWAY CO.
HISTORIC POWER HOUSE (ORIGINAL LOCATION)
WATER RESERVOIR
TURNTABLE
RAIL TUNNEL
SOUTH WASHROOM
WELDING SHOP
BABBIT SHOP
LINE OF PARKING BELOW
STOREHOUSE
PLATFORM
LANDS OF BURLINGTON NORTHERN & SANTA FE RAILWAY CO.
PACIFIC AVENUE SW
CROMWELL AVENUE SW
BARELAS
below grade parking
N
0 30' 60' 120'

10.8 Concept Vignettes *(Illustrative sketches to convey concepts)*



View 1: Firehouse Cafe 1

The historic Firehouse is adaptively reused as a restaurant/cafe and surrounded by a generous public plaza availble for outdoor seating and events. The plaza perimeter is defined by the Acoustic Mounds which are sculpted to create pockets for small group seating and "off-road" strolling areas. Neighbors, workers and visitors alike can traverse the mounds for exercise, and use the seating, located variously, to look out and enjoy views to the site and surrounding neighborhood.

The plaza area surrounding the Firehouse ties into and extends the perimeter Edge Walk concept onto the site.

Given the discrete nature of its location, development of the Firehouse Cafe could be one of the Master Plan actions to be implemented and accordingly is included in Phase 1 of the development schedule.



View 2: Meandering Walk 2

The Meandering Walk is a tree-lined, on-grade path, that provides a leisurely, curvilinear route moving pedestrians north and south across the site along the edge of the Acoustic Mounds. The Meandering Walk follows the curvature of the east or west elevations of the office/lab/cultural spaces housed beneath the North and South Paseo structures. First floor office, laboratory, or cultural related spaces below the Paseo deck look out on this walk-way. Glazing along the work-area perimeter brings natural light to the work-space interiors, and permits views from the walk in and the from the offices out.

Trees shade both the Meandering Walk and the edge of the Paseo deck above. Intermittent seating opportunities are provided along the walks on both east and west sides of the Paseo. The edge of the walk will be developed as a drainage swale to collect and control storm water.



View 3: Quadrangle 3

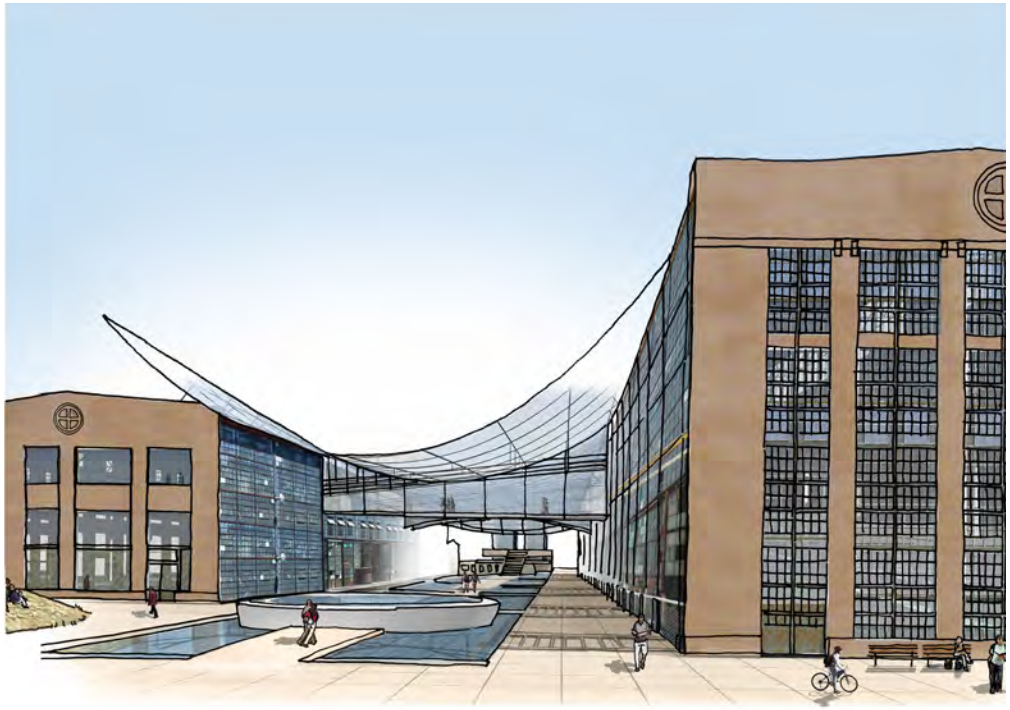
The Quadrangle, created by the intersection of the North Paseo with the "U" shaped conjunction of the Flue, Boiler and Tank Shops, is a more private, "walled" enclosure that opens to the north across a large public stair, effectively connecting the Quadrangle floor across the North Paseo to the Downtown City Center.

The Quadrangle is either open to the sky or can be readily covered by attaching a temporary canopy to the roof edges of the buildings that define the Quadrangle perimeter. The resulting space can be used in a variety of ways as an open-air performance, market, or exhibition venue with seating imported as required, or alternatively, using the descending stairs as permanent seats.



View 4: Edge Walk 4

The Edge Walk runs parallel with the sidewalk along 1st and 2nd Streets adjacent to the entire length of the western perimeter of the site. Along the way, the Edge Walk extends and contracts with the undulations of the Acoustic Mounds to include street side plazas, landscaped areas, and proposed retail spaces. The Edge Walk concept may be developed in conjunction with the current need to provide improved sidewalks (currently missing) along the property edge. Visitors arriving to Albuquerque at the Alvarado Transportation Center will be encouraged to walk to the Rail Yards and will get their first experience of the site along the Edge Walk.



View 5: Perpendicular Walk

5

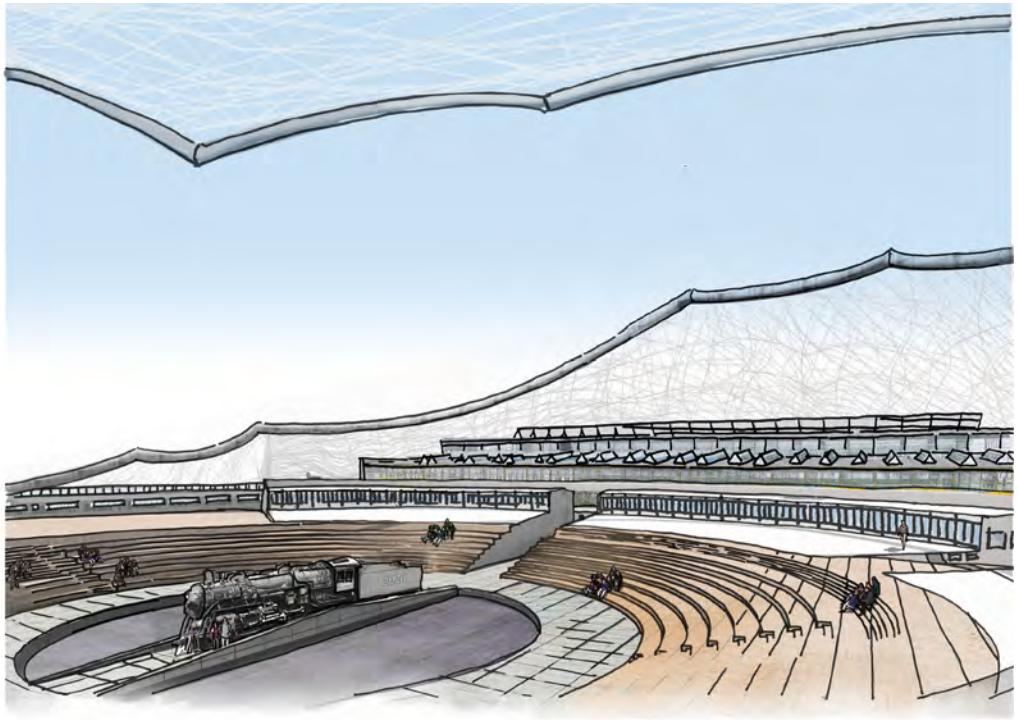
The Perpendicular Walk is the pedestrian heart of the redeveloped Rail Yards project and the critical connective tissue between the Barelas and South Broadway neighborhoods. The Walk is a rectangular, east/west pedestrian space, located midway along the site between the Machine and Boiler/Blacksmith Shops and flanking the historic Transfer Table. The Perpendicular Walk is covered by an all-glass canopy that spans between the perimeter buildings by a light weight cable truss system that may also accommodate intermittent skywalks serving potential future tenant needs. The glass canopy will provide cover to the space and will collect and funnel rainwater into a cistern for future reuse. The trough of the Transfer Table is adaptively reused as a water feature that will provide evaporative cooling and reflect/refract the grandeur of the historic facades across the surface of the water. The Perpendicular Walk terminates in a bridge structure, the Retail Pedstrian Bridge, that spans the BNSF railway, currently in use.



View 6: Machine Shop Plaza

6

Extending south from the Machine Shop is the Machine Shop Plaza, useable for exhibits or open air markets. The Concept Plan proposes to adaptively reuse the historic Bridge Crane apparatus attached to a steel frame that extends across the south elevation. The Bridge Crane and steel frame support an innovative retractable canopy that attaches to the existing Crane mechanism. When the Crane moves across the south elevation from east to west, it pulls the canopy with it, so that either a portion of or the entire space below can be covered, allowing for marketing space in every sort of weather. The canopy can be opened and retracted as events in the Plaza require. The canopy itself is made from 2 layers of colored PVC fabric welded at the seams (not unlike Hot Air Balloon construction) to form a series of "pillow" type structural membranes continuously attached to the Bridge Crane support tracks and spanning the 50ft width of the space. Once in place, the canopy is inflated via air compressors installed on the crane.

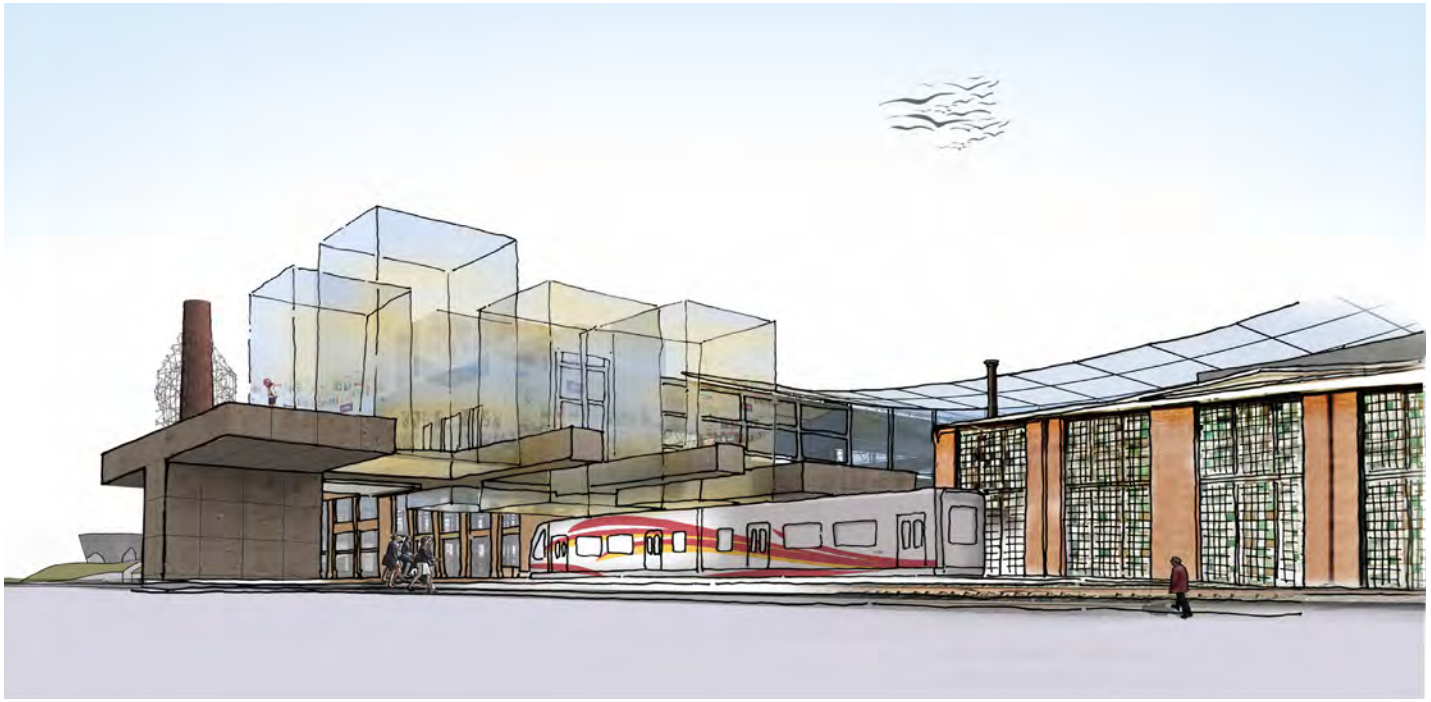


View 7: Turntable Commons

7

The Turntable Commons is a dynamic public space created by the convergence of the South Paseo and the proposed rebuilt Roundhouse structures. At the center of the Turntable Commons resides the historic Turntable that will remain in operation for BNSF service in the forseeable future and that may have a role in the future programming of the space as an analogue stage. Tiered seating surrounding the Turntable extends to connect to the Roundhouse which will be constructed in the same plan position and with the same massing as the original building.

The Turntable Commons is an open-air venue for cultural uses including concerts, performing arts and museum uses. A light-weight net canopy will provide shading.

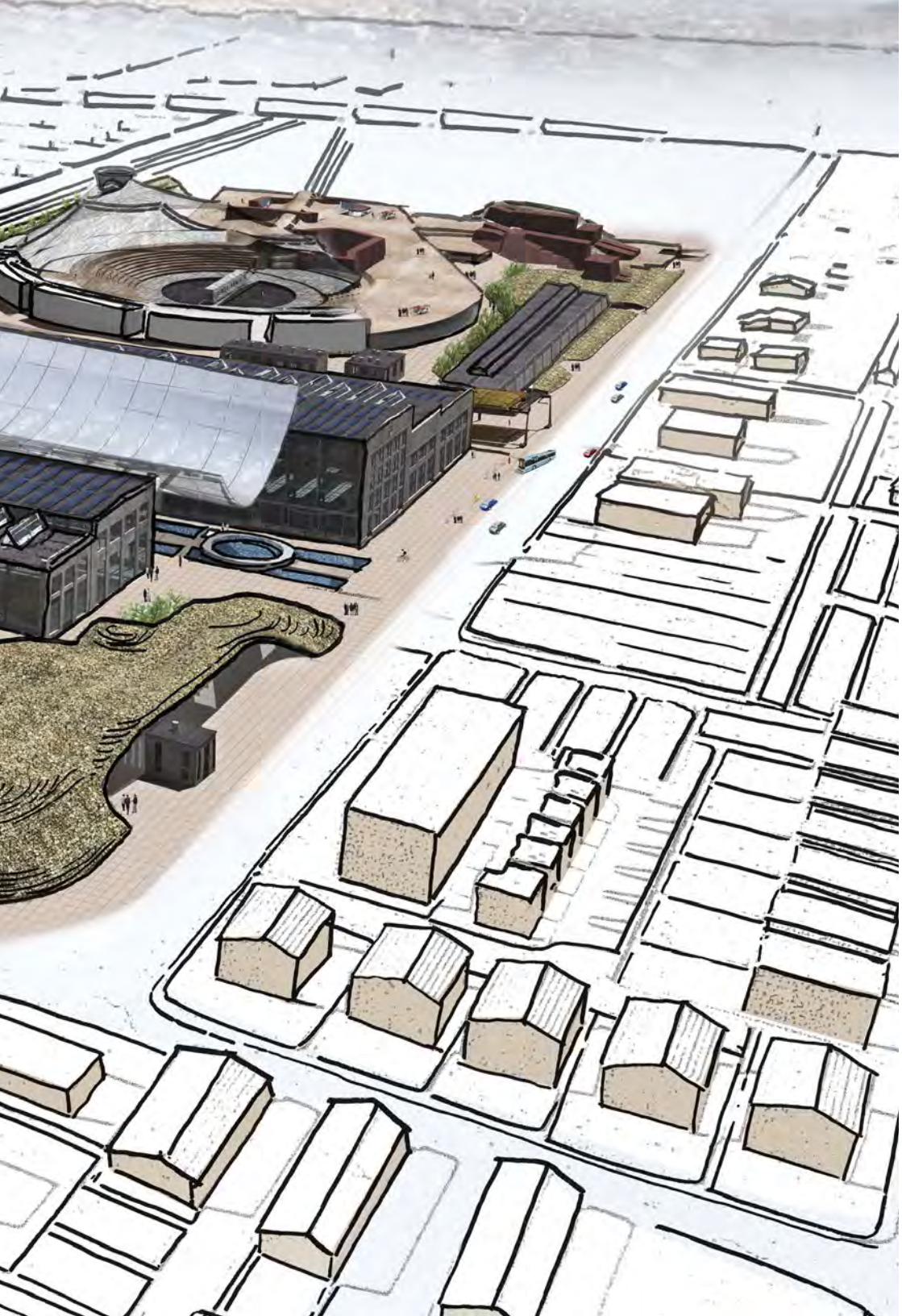


View 8: Pedestrian Retail Bridge

8

The Pedestrian Retail Bridge will allow people and bicycles to cross over the BNSF Rail lines to and from the Rail Yards site. The Bridge will also contain occupiable spaces that may be used for retail, workshops, or artist studios. The Bridge, by virtue of its location above an operational railway will become a gateway symbolizing the rebirth of the Rail Yards to rail passengers. Should a future train stop be permitted, the area immediately below the Bridge would be used.





View 9: Aerial View 9

TABLEAU 6: Conceptual Aerial View from the Northwest



View 10: Aerial View 10



TABLEAU 7: Conceptual Aerial View from the West

10.9 Surrounding Development Opportunities

The long-term success of the Rail Yards redevelopment will be aided by the simultaneous and complimentary investment and redevelopment of its immediate surroundings. Although not directly part of the Master Development Plan scope, the strategic planning of this area is an important subject to be included in the MDP document. Recommendations for the development of these adjacent sites are as follows (refer to Figures 17 and 18 for maps showing existing vacant lots in South Broadway, dated 2013 and Barelas, dated 2010 respectively):

- Vacant parcels located within the Barelas and South Broadway neighborhoods could be developed and infilled as housing to match existing city fabric.

- Vacant or currently occupied parcels north of the site currently zoned SU-2 WD (warehouse district) could be developed as a continuation of the innovation and creative-based business hub envisioned by the Rail Yards Master Development Plan. The BNSF property immediately north of the Rail Yards site could be similarly developed, creating an innovation corridor that will connect Downtown with the redeveloped Rail Yards.

- BNSF property immediately east of the Rail Yards could be planned for future public / cultural / community uses that will extend the cultural center envisioned as part of the Master Development Plan. In general, the planning strategy is for the Rail Yards to become an "anchor tenant" on both a cultural and private business level with complementary tenancies and uses extending outward.

- The large storm water catchment area located east of the BNSF rail lines and Commercial Street in South Broadway could be developed as a public park. As a place of repose away from the gritty aesthetic of Rail Yard, the park would be a great place to "take in" the redeveloped site without having to be there. Its shape, focused orientation and sculpted terrain provide a natural landscape for public gatherings and would be a great asset to the community.

- Pedestrian connections from the Rail Yards to local Barelas businesses located on 4th Street are important and could be strengthened. At a minimum, Santa Fe Avenue could see additional tree planting and beautification to facilitate pedestrian traffic. 4th Street local businesses will be a great amenity for future users of the Rail Yards site.

- Similarly, sidewalk connections along 1st Street between the Alvarado Transportation Center and the Rail Yards could be improved.

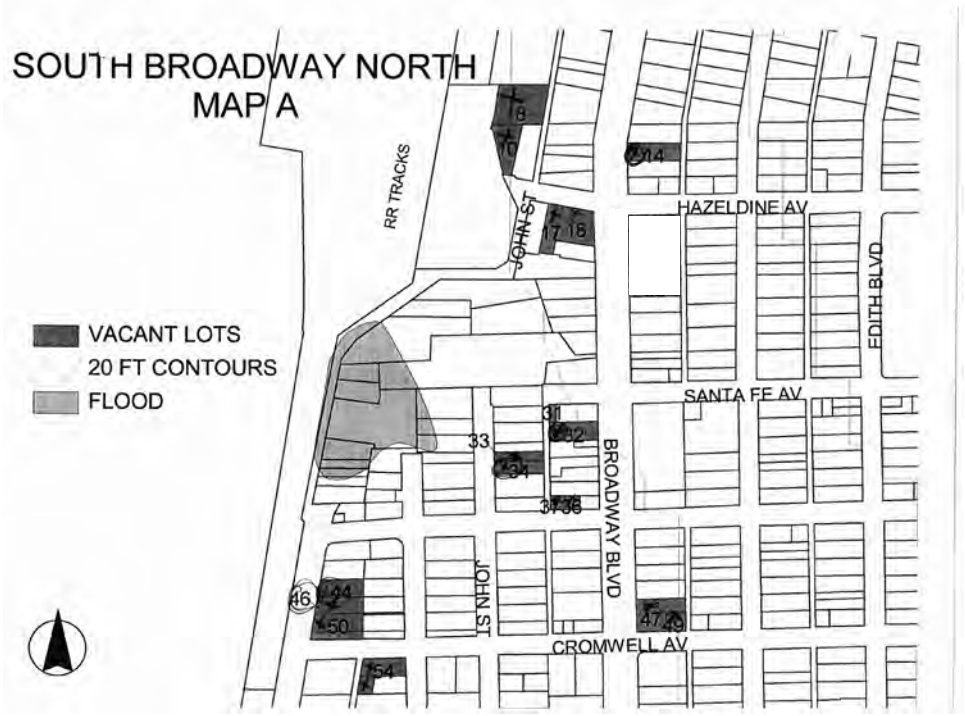


Figure 17: Existing Vacant Lots in South Broadway



Figure 18: Existing Vacant Lots Highlighted in Yellow, Barelas SDP (2010)

10.10 Project Phasing

A phasing plan is provided in Figure 19 as a general framework for the relative sequencing of project buildout over time. Phases are organized by parcel designations previously discussed in Sections 6 and 8. Although the Concept Plan includes these preliminary recommendations, it is critical to the future success of the project that there remain ample flexibility to respond and adapt to the changing conditions of the future marketplace. The general concepts underlying the phasing plan are as follows:

Phase 1 - Stimulate Interest in the Rail Yards

A preliminary Phase I concept should be implemented to stimulate interest in the Rail Yards project from a future user/tenant perspective, to set the tone and standards of design quality for the future buildout and most importantly, to get the community engaged and reconnected to their site. The proposed Phase I scheme should strive to embody the energy of the future development and have the greatest public visibility possible for the least initial investment of cost. Specific Phase 1 recommendations are as follows:

- Machine Shop Plaza / Farmer's Market under the Bridge Crane: Refer to Section 10.12 for a detailed description of the concept.

- Firehouse Cafe: The adaptive re-use of the historic Firehouse building into a public cafe complete with outdoor seating should be considered in Phase 1.

Phase 2 - Develop Job Core

The adaptive reuse of the existing buildings into a vital and innovation-based job center is the business model and economic engine that will drive the successful redevelopment of the Rail Yards. Phase 2 implementation must be adaptable to a dynamic market and must be able to be processed in a timely manner to accommodate user/tenant requirements for occupancy.

Phase 2 contains both a south component (Parcel 5) and a north component (Parcels 7, 8) which may be developed together or sequentially depending on project needs. Surface parking to accommodate this phase will be developed according to Tableau 8: Preliminary Phase Parking Plan included on the following page. Preliminary phase parking is designed to provide the same number of parking spaces as will eventually be accommodated in the proposed below grade structures; approximately 642 in the proposed south lot (including existing parallel parking spaces located directly west of the Storehouse Building) and 353 in the proposed north lot. Although interim in nature, surface parking must be well designed and properly integrated with other concepts contained within the Master Plan. Considerations for each surface parking area are as follows:

North Lot

- Access is by a driveway located at the intersection of Hazeldine Avenue and 1st Street.

- Parking is oriented north-south to comport with the axial configuration of the existing buildings.

- A dedicated lot is provided to serve the Firehouse Cafe. Loading access will be provided. All other parking will be shared by other development parcels.

- Where possible, parking must not be located immediately in front of, and therefore blocking, existing buildings.

- Parking is screened from the street by landscaping.

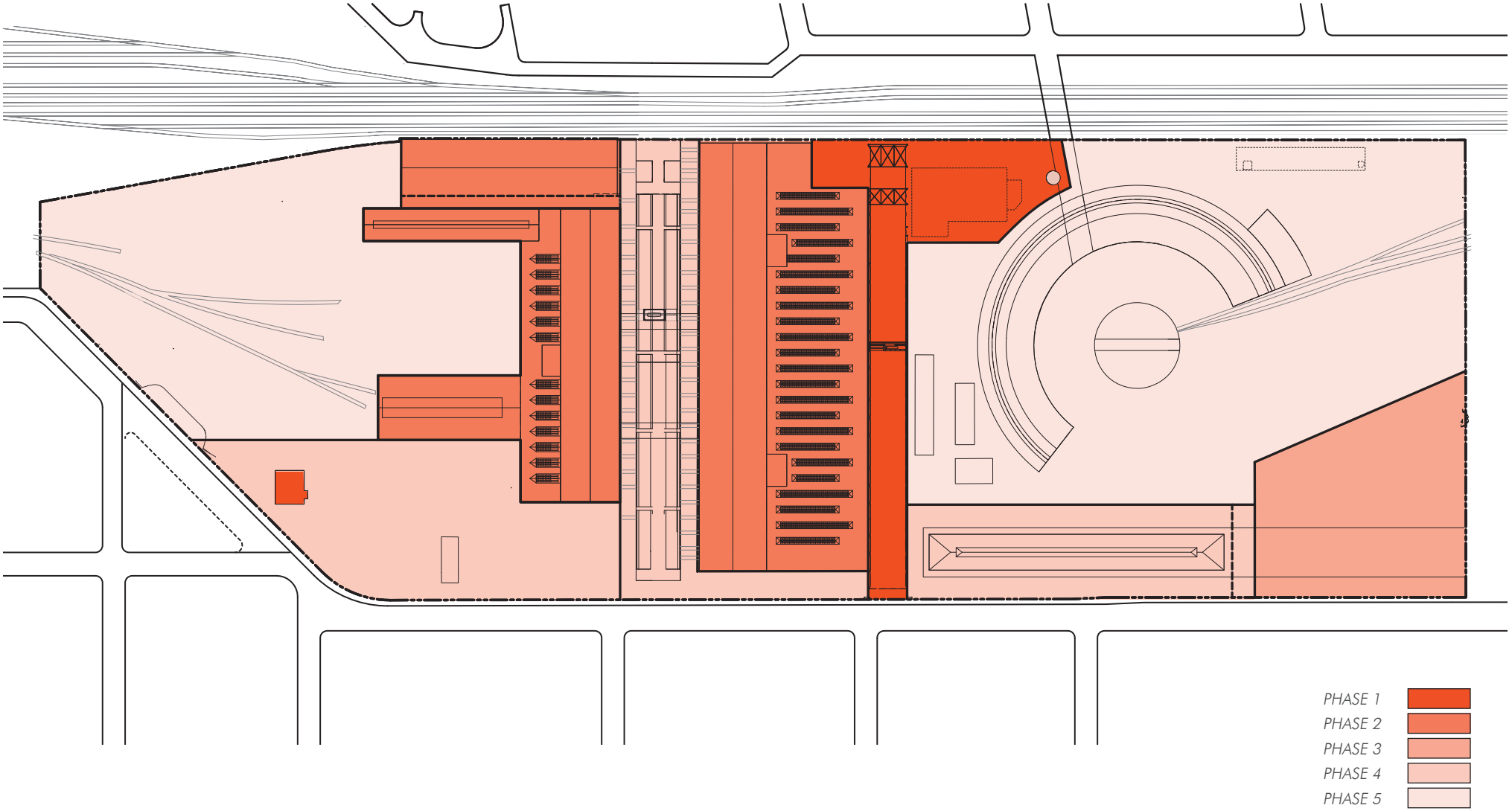


Figure 19: Phasing Plan Diagram

- ADA parking is located in closest proximity to intended use destination.

South Lot

- Access is by a driveway located at the original entrance to the historic Rail Yard, at the intersection of Pacific Avenue and 2nd Street.

- Primary parking is organized around, and uses the historic foundations of, the original Roundhouse. BNSF easement access to the Turntable is preserved.

- The existing surface lot with parallel parking serving the Storehouse building will be preserved but improved to accommodate better traffic flow through the addition of a egress driveway to 2nd Street located at the south of the site.

- Parking is screened from the street by the Storehouse building and existing platform. Depending on the timing of Phase 2, the Workforce Housing component may also screen parking from the street.

- Parking provided will generally serve the entire Rail Yards site during these preliminary phases.

- At-grade crossing is provided from the South Broadway neighborhood as extension of Cromwell Avenue.

- Intermittent loading and emergency access is provided just north of the proposed driveway access under the extension of the Bridge Crane at 2nd Street. Significant loading operations will be required to accommodate proposed Grower's Market located in the Machine Shop Plaza.

Phase 3 - Workforce Housing

Based on feedback during the Master Planning process, it was recommended that the Workforce Housing component of the project located on Parcel 2 be implemented as soon as possible within the development timeframe of the overall project. The timing of housing development, however, will need to take into consideration various factors, including but not limited to the nature of ongoing development activity on the rest of the site and the impacts that future on-site residents may experience if housing is developed in an early phase. Given the recommended location along 2nd Street, early development of the Housing component necessarily will block construction access to the balance of the site and may impact considerations such as the timing of underground parking construction.

Notwithstanding the above, when Workforce Housing is ultimately developed will depend on many factors, including when a housing developer is selected and when sufficient funds for the project can be secured. The Master Development Plan shall consider implementation of the Housing component as early as feasible.

Phase 4 - Retail Edges and Connective Tissue

Having developed the core infrastructure in Parcel 2, development of Phase 4 will proceed from the center of the project outward and will include construction of the Transit Plaza, Perpendicular Walk and Pedestrian connection to South Broadway (Parcel 6), the landscape buffers and Retail component adjacent to 2nd Street (Parcel 9) and any additional improvements required for the Storehouse Building (Parcel 3) should there be a desire to increase density or change of use.

Phase 5 - Paseo / Subterranean Garages

Phase 5 includes construction of the single story infill buildings and the subterranean parking garages located beneath them (Parcels 1

and 10). Phase 5 also includes the rebuilding of the Roundhouse and Smokestack buildings that are intended as the cultural anchors of the project. Construction of the new infill buildings will necessarily cause the temporary displacement of parking and therefore it is recommended that Parcel 10 be developed first since it has significantly less impacted parking that could be more easily accommodated within the surface parking lot located on Parcel 1. In addition, parking requirements for Parcel 1 will be significantly less until such time as the Parcel 1 improvements are constructed.

10.11 Development Thresholds

Although the phasing plan is provisional, the issue of when certain improvements are made or phases "triggered" is an important subject for consideration in the redevelopment of the site. Although subject to change, the various thresholds for commencement of each of the development phases is proposed as follows;

- Phase 1 and 2: Approval of Master Development Plan, MDDA document, and project financing. Approval of adaptive reuse of historic buildings as described in the Master Development Plan document.

- Phase 3: Approval of Master Development Plan and MDDA. Selection of a housing developer (if different than Master Developer), project financing and determination of phasing impacts of Phase 3 development to itself and all current and future phases of development.

- Phase 4: Completion/Tenant Buildout of 50% of Phase 2 total allowable building area. Approval of adaptive reuse of historic buildings as described in the MDP document.

- Phase 5: Completion/Tenant Buildout of 75% of Phase 2 total allowable building area. Reconstruction of Historic Roundhouse and Smokestack will require approvals as described in the MDP document.

1. PRIMARY ACCESS POINTS TO NORTH AND SOUTH SURFACE PARKING LOTS.
2. ADJOINING PARCEL NOT CONTROLLED BY CITY BUT WITH STRATEGIC IMPORTANCE TO MASTER PLAN. MDP RECOMMENDS ITS INCLUSION.
3. MAIN NORTH–SOUTH DRIVE AISLE FOLLOWS APPROXIMATE POSITION OF ORIGINAL FIRE ROAD.
4. USE EXISTING FIRE ROAD FOR LOADING TO FIREHOUSE CAFE.
5. DISCOURAGE PARKING ALONG EDGE OF EXISTING BUILDINGS, PLACE ROADS/PEDESTRIAN ACCESS AGAINST EDGES TO KEEP OPEN.
6. FIREHOUSE CAFE AND PLAZA MAY BE DEVELOPED EARLY IN THE PROJECT.
7. ADD STRATEGIC LANDSCAPING ALONG EDGE OF SURFACE PARKING WHERE SHOWN TO MINIMIZE VISUAL IMPACT OF VEHICLES. POSSIBLY USE POTTED LANDSCAPE SUCH THAT IT MAY BE REUSED DURING FUTURE BUILDOUT PHASES.
8. GUEST PARKING FOR FIREHOUSE CAFE.
9. LINE OF RECONFIGURED SECOND ST. CUTS INTO THE FORMER 1ST/2ND ST. CORNER OF THE RAIL YARDS SITE.
10. PORTION OF LAND CREATED BY THE RECONFIGURATION OF 2ND ST. IS OF STRATEGIC IMPORTANCE TO MASTER PLAN, MDP RECOMMENDS ITS INCLUSION.
11. LINE OF ORIGINAL POSITION OF 2ND ST. DEMARCATION OF NEW PARCEL AREA TO THE EAST REFERENCED IN KEYNOTE 10.
12. PORTION OF ORIGINAL FIRE ROAD USED TO CONNECT SOUTH AND NORTH PARKING LOTS, POSSIBLY USED FOR PEDESTRIAN CIRCULATON OR EMERGENCY ACCESS ON INTERIM LEVEL.
13. PARALLEL PARKING SERVED BY ONE–WAY DRIVE AISLE TO SERVE EXISTING WHEELS MUSEUM.
14. LOCATION FOR PROPOSED PHASE I BRIDGE CRANE MARKET.
15. MODERN POWER HOUSE TO BE REMOVED.
16. LOCATION FOR PROPOSED REBUILT SMOKESTACK ATOP ORIGINAL FOUNDATION.
17. LOCATION FOR PROPOSED REBUILT ROUNDHOUSE ATOP ORIGINAL FOUNDATION, ALSO SERVES AS PRINCIPLE ORGANIZATIONAL MECHANISM FOR SOUTH SURFACE PARKING LOT.
18. LOCATION FOR PROPOSED REBUILT ROUNDHOUSE ATOP ORIGINAL FOUNDATION, ALSO SERVES AS PRINCIPLE ORGANIZATIONAL MECHANISM FOR SOUTH SURFACE PARKING LOT.
19. PROPOSED PEDESTRIAN AT–CROSS CROSSING

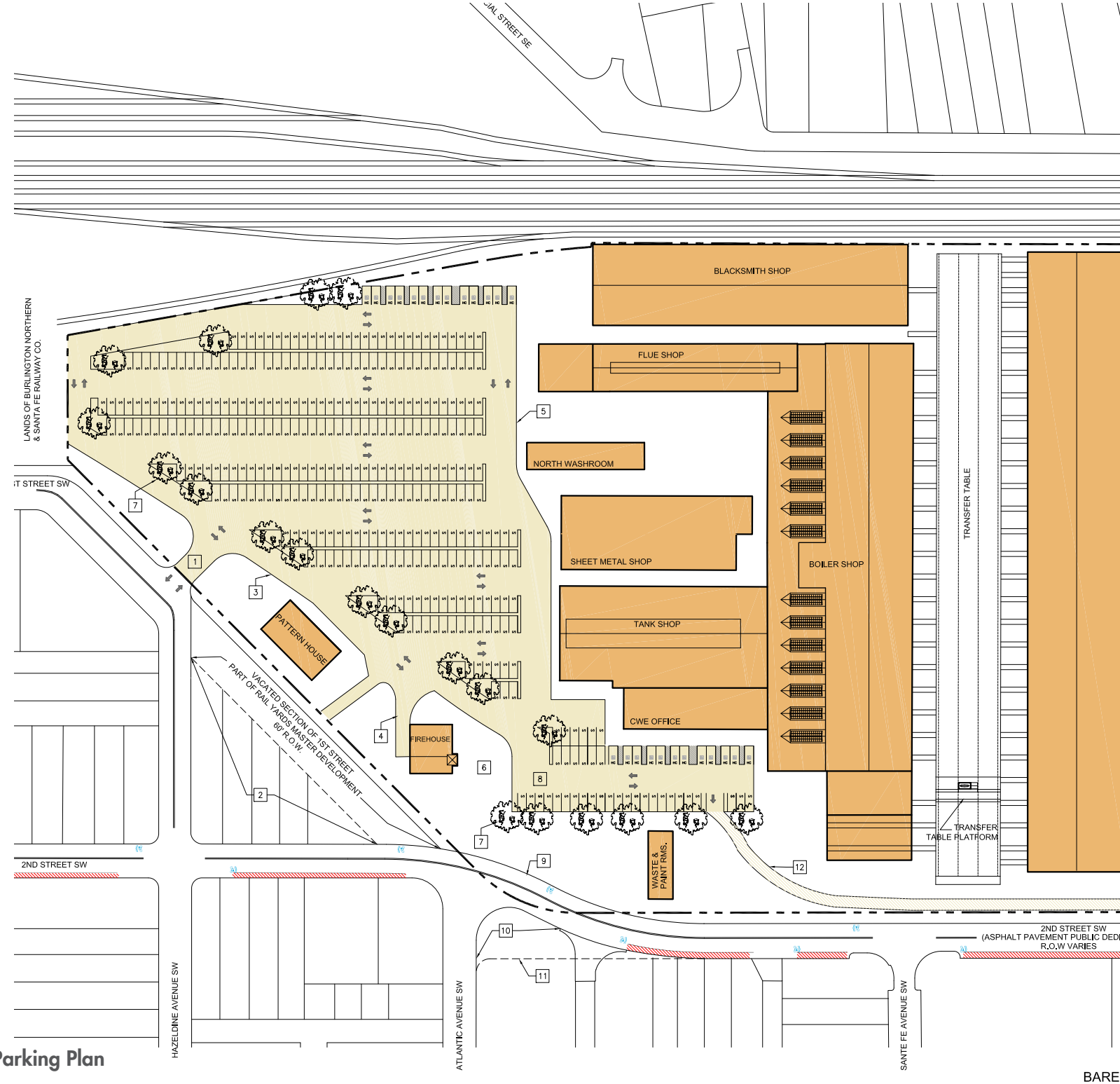
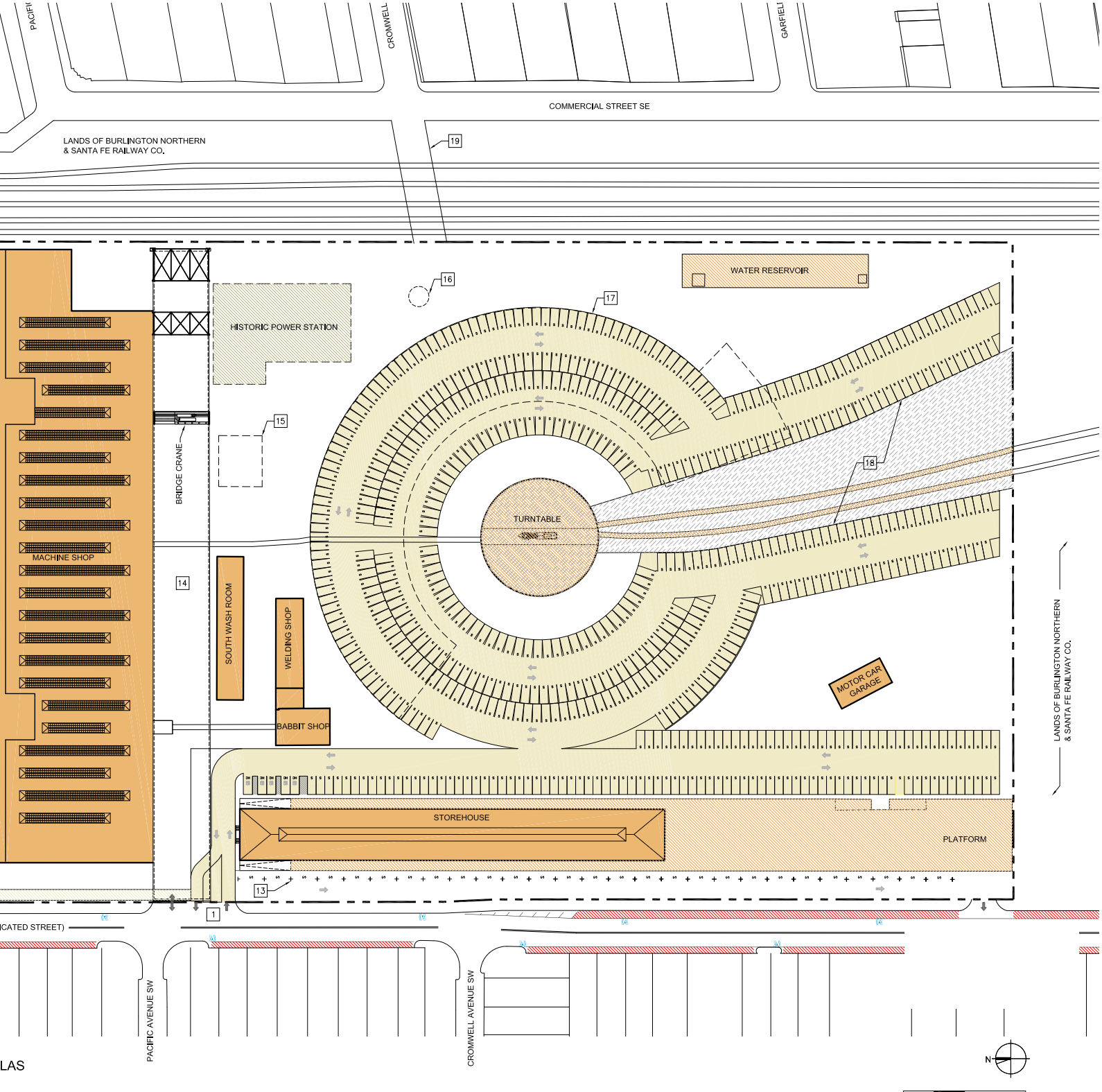


TABLEAU 8: Preliminary Phase Parking Plan

Concept and Phasing Plan **Section 10**



LEGEND

- PRESERVE (OUTDOOR ELEMENT SHOWN HATCHED)
- SURFACE PARKING (INTERIM PHASES ONLY)
- TURNTABLE ACCESS EASEMENT
- PARKING ACCESS
- INTERMITTENT LOADING/DELIVERY/FIRE ACCESS
- ON-STREET PARKING
- BICYCLE LANE

N

0 30' 60' 120'

10.12 Conceptual Phase 1 Implementation

The purpose of this section is to provide a detailed presentation of the open-air Farmer's Market concept recommended as the initial Phase 1 development and the first action taken toward implementation of the Concept Plan. The concept proposes utilizing the approximately 50ft wide space immediately to the south of the Machine Shop within and below the area served by a 15-ton Bridge Crane that once was used to transport supplies and equipment laterally across the full width of the site. The Bridge Crane is supported on the north by a beam and track system connected directly to the facade of the Machine Shop whereas the south is supported by a steel wide flange beam and column colonnade.

Below is a summary of benefits of the proposed Phase 1 concept;

- Provides early stage public use of the site, creates enthusiasm for the Rail Yards redevelopment. Provides direct connection to the Barelas Neighborhood from 2nd Street, extends Pacific Avenue onto Rail Yards site.

- Re-opens historic entrance to the Rail Yards site, refer to photo on preceding page.

- Provides high level of off-site visibility from Avenida Cesar Chavez (39,000 cars per day), affords a great number of Albuquerque residents to know that the Rail Yards are under redevelopment.

- Utilizes innovative, state-of-the art engineering stategy for canopy structure. Creates new, vibrant canopy that would bring life to the existing Bridge Crane structure and Rail Yards site in general.

- Takes advantage of south exposure providing ample sun when cool and ample canopy shade when hot.



PAST

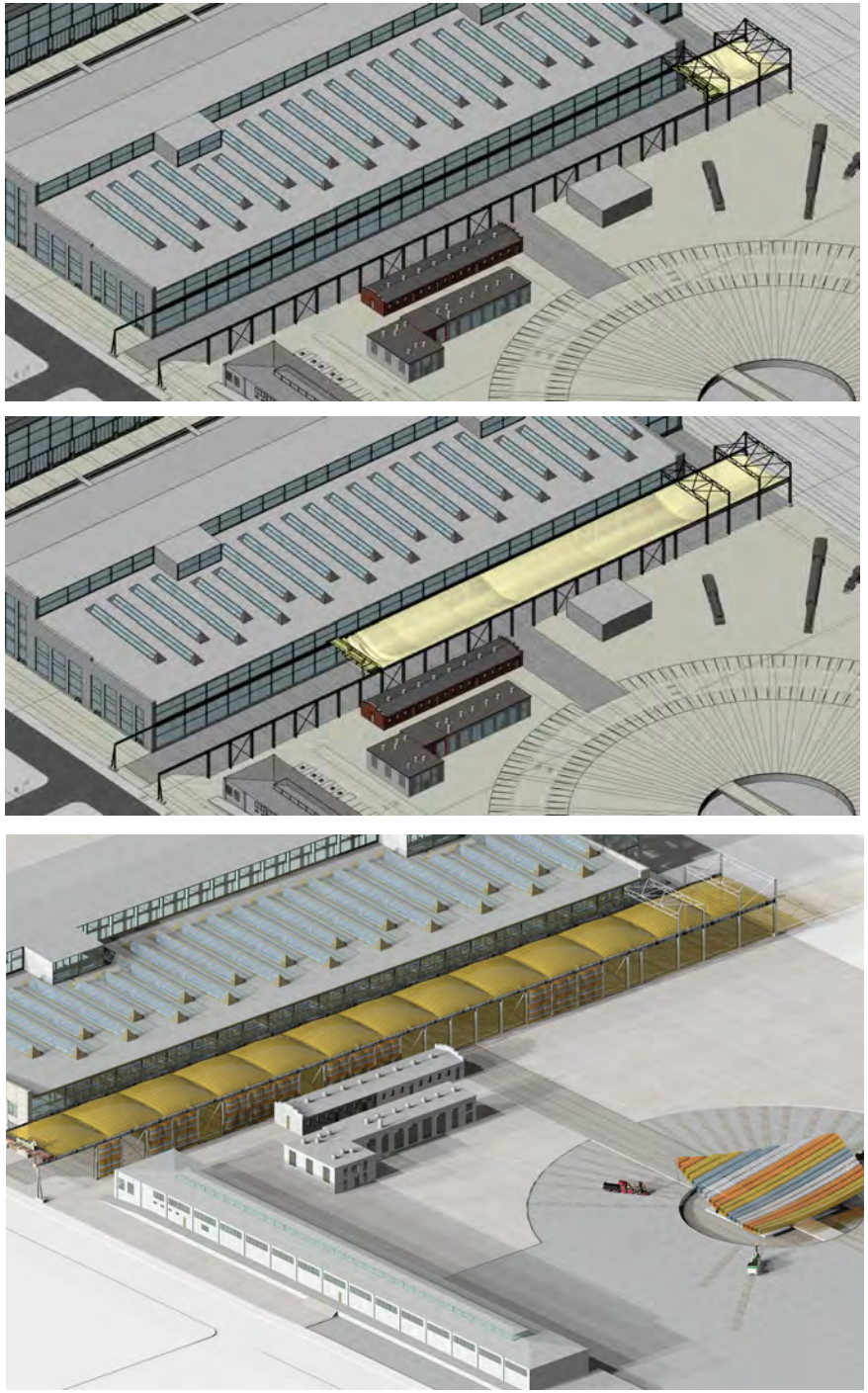


PRESENT



FUTURE - OPEN CANOPY

- Provides direct connection with historic structures; Re-opens historic entrance to the Rail Yards site, refer to photo on preceding page, uses the Machine Shop as a backdrop and allows the potential early stage adaptive reuse of the smaller historic buildings located adjacent to the site; South Washroom, Babbit Shop and Welding Shops.



Phase 1 Concept showing Bridge Crane canopy operation

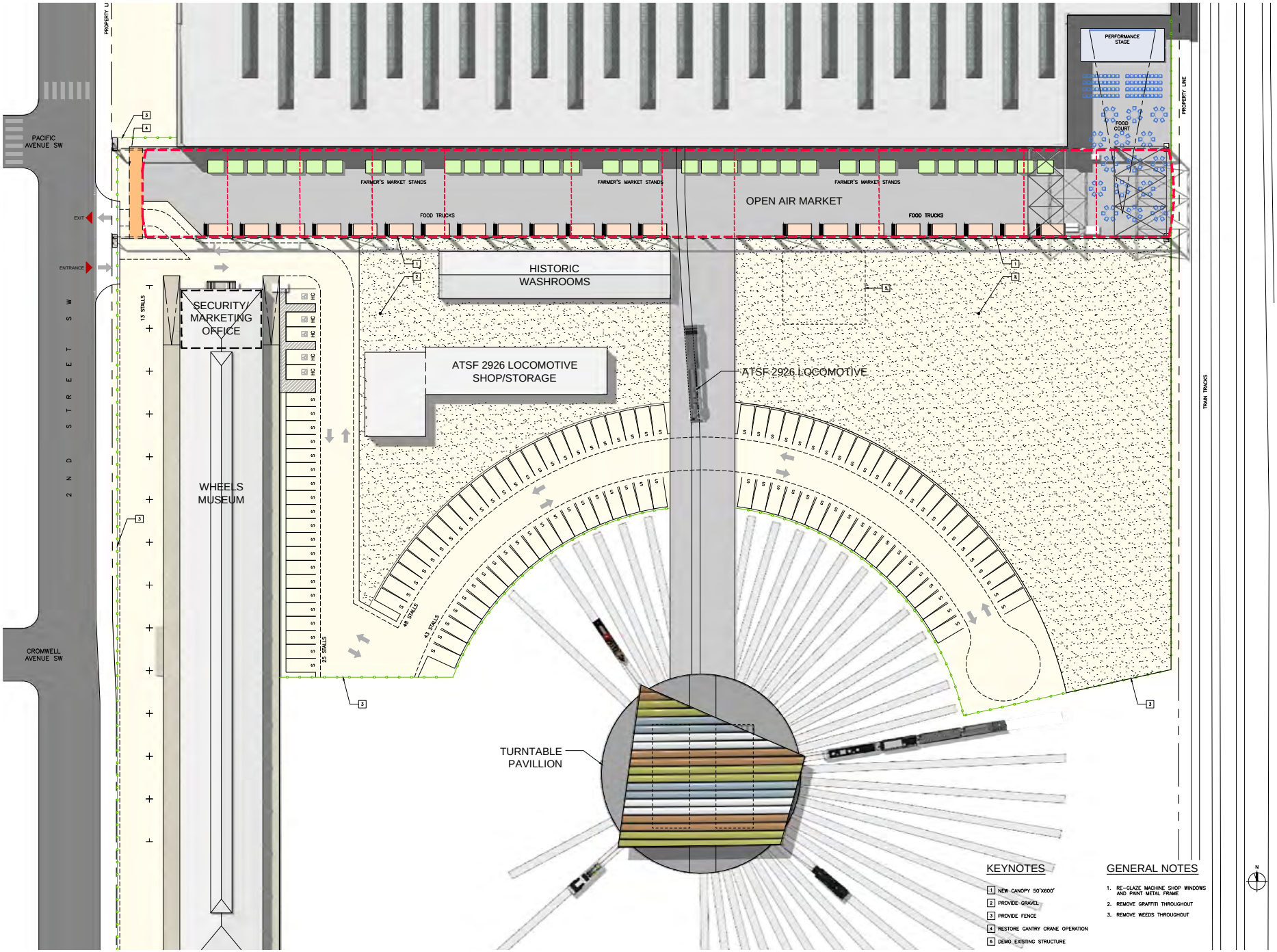


FIGURE 20: Phase 1 Site Plan Concept



Phase 1 Concept Rendering, Market under Bridge Crane canopy



Phase 1 Concept Rendering, Night view From Avenida Cesar Chavez


Troweling floor
Mach. Shop.

APPENDICES

APPENDIX A: SOURCES AND CREDITS

- ULI Advisory Services Panel, 2008, "Albuquerque Rail Yards," prepared at the invitation of the City of Albuquerque, the WHEELS Museum, and the University of New Mexico School of Architecture and Planning.

- Wilson, Chris, 1986, "The Historic Railroad Buildings of Albuquerque, an Assessment of Significance," prepared for the Redevelopment Division, Planning Department, City of Albuquerque.

- Dodge, Bill et al, 2014, "National Register of Historic Place Nomination Form, Atchison, Topeka & Santa Fe Railway Locomotive Shops Historic District," prepared for the City of Albuquerque for submittal to the New Mexico State Historic Preservation Office.

- City of Santa Fe, 2002, "Santa Fe Railyard, Master Plan and Design Guidelines." Master Plan prepared for the former Rail Yard site at the terminus of the former ATSF line in Santa Fe.

- City of Albuquerque, 2008, "Barelas Sector Development Plan." Document prepared as a replacement to the Barelas Sector Development Plan written in 1978 and amended in 1993.

- City of Albuquerque, 1986 (amended 2002) "South Broadway Neighborhoods Sector Development Plan."

- Historic District Improvement Company, 1999, "Master Plan, Alvarado Transportation Center Project Area."

- City of Albuquerque, Department of Finance and Administrative Services, 2010, "Request For Proposals, Solicatation Number: RFP 2011-003-JR."

APPENDIX B: TRAFFIC IMPACT STUDY

Terry O. Brown P.E.

Railyard Re-development
(Second St. S. of Hazeldine Ave.)

Traffic Impact Study

October 1, 2013

Presented to:

City of Albuquerque

Prepared for:

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Traffic Impact Study
Railyard Re-development – (Second St. S. of Hazeldine Ave.)

STUDY PURPOSE

The purpose of this study is to identify the development's impact on the adjacent transportation system. The study is being conducted in conjunction with a request for approval of a proposed plan for a commercial retail, office, and residential development located at Second St. south of Hazeldine Ave. in Albuquerque, New Mexico. This study is presented to satisfy the requirements of the City of Albuquerque.

GENERAL

The proposed development is located along the east side of Second St. between Hazeldine Ave. and Bridge Blvd. (see Appendix Page A-1 - Vicinity Map). It is the old AT&SF Railyard. The existing intersections of Gold Ave. / Second St., Lead Ave. / Second St., Coal Ave. / Second St., and Bridge Blvd. / Third St. are currently signalized intersections and the existing intersections of Hazeldine Ave. / Second St. and Santa Fe Ave. / Second St. are unsignalized intersections and will be analyzed in this study.

Currently, properties in the area are a mix of commercial, office, and residential in nature.

PROPOSED DEVELOPMENT

The proposed plan for this site consists of an approximately 1 million SF mixed use project described in the table below. This study will analyze only the full development of the project.

Use	Scenario 1 – Samitaur Master Plan (1-4-13)
Cultural Facilities	239,229 – 271,767
Housing	77,927 – 110,465
Public/Open Space	<123,466
Comm./Retail/Restaurant	100,000
Light Manufacturing	<430,100
Office	<430,100
Training/Education	<430,100
TOTAL SQFT	**1,003,260**

The anticipated implementation year for this site is the year 2018.

STUDY PROCEDURES

A Scoping Meeting was with City of Albuquerque staff to discuss scope and methodology to be utilized within the report before the start of the project. Specific items included format, intersections to be studied, intersection analysis procedures, existing traffic counts, trip distribution methodology, and implementation year definition.

The basic procedure followed for this traffic impact study is outlined as follows:

- Calculate the generated trips for this proposed development as defined on Page A-3 of the Appendix of this report and more specifically defined in the Trip Generation Table on Page A-5 of the Appendix of this report. The trips generated for the implementation year analyses (2018) will assume that 100% of the development has occurred.
- Calculate trip distribution for the newly generated trips by this development. The new trips will be distributed based on a two-mile radius distribution of population for the commercial portion of the development and based on city-wide socio-economic data from the Mid-Region Council of Governments (2035 data set) for the residential and office portions of the development, Appendix Pages A-15 thru A-20, A-23 thru A-27, and A-30 thru A-35.
- Determine Trip Assignments for the newly generated trips based on the results of the Trip Distribution Analysis and logical routing to and from the new site, Appendix Pages A-21 thru A-22, A-28 thru A-29, and A-36 thru A-37.
- Obtain AM Peak Hour and PM Peak Hour Turning Movement Volumes Traffic Counts for the intersections of Gold Ave. / Second St., Lead Ave. / Second St., Coal Ave. / Second St., Bridge Blvd. / Third St., Hazeldine Ave. / Second St., and Santa Fe Ave. / Second St., Appendix Pages A-115 thru A-120.
- Determine Historic Growth Rates for background traffic volumes based on an analysis of the growth trend of recent AWDT Volumes obtained from 2002 thru 2011 MRCOG Traffic Flow Maps, Appendix Pages A-38 thru A-52.
- Determine the 2018 NO BUILD Volumes for each intersection to be analyzed by growing the background traffic growth from the year of the counts to 2018, Appendix Pages A-53 thru A-72.
- Add newly generated trips from the proposed development to the 2018 NO BUILD Volumes to obtain the 2018 BUILD Volumes for this project, Appendix Pages A-53 thru A-72.
- Provide signalized and / or unsignalized intersection analyses for the following intersections:

INTERSECTION	TYPE CONTROL	NO BUILD ANALYSIS	BUILD ANALYSIS
Gold Ave. / Second St.	Traffic Signal	2018	2018
Lead Ave. / Second St.	Traffic Signal	2018	2018
Coal Ave. / Second St.	Traffic Signal	2018	2018
Bridge Blvd. / Third St.	Traffic Signal	2018	2018
Hazeldine Ave. / Second St.	Stop Sign	2018	2018
Santa Fe Ave. / Second St.	Stop Sign	2018	2018
Driveway 'A' / Second St.	Stop Sign	N/A	2018
Driveway 'B' / Second St.	Stop Sign	N/A	2018

TRIP GENERATION WORKSHEET

Projected trips were calculated based on the ITE trip generation data for library, apartment, city park, shopping center, variety store, high turnover (sit-down) restaurant, manufacturing, general office, and junior / community college. Trips for the development were determined based on land use defined by the developer. See Conceptual Site Development Plan on Page A-3 in the Appendix of this report. The following table summarizes the trip generation rate for the project:

Railyard Re-development (Second St S. of Hazeldine)

Trip Generation Data (ITE Trip Generation Manual - 9th Edition)

COMMENT	USE (ITE CODE) DESCRIPTION		24 HR VOL GROSS	A. M. PEAK HR. ENTER	A. M. PEAK HR. EXIT	P. M. PEAK HR. ENTER	P. M. PEAK HR. EXIT
	Summary Sheet	Units					
Cultural Facilities	Library (590)	270.00	7,427	249	102	721	781
Housing	Apartment (220)	160	1,093	16	66	69	37
Open Space	City Park (411)	120.00	227	302	238	239	181
40%	Shopping Center (820)	40.00	3,743	55	34	156	169
40%	Variety Store (814)	40.00	2,561	76	76	136	136
20%	High Turnover (Sit-Down) Restaurant (932)	20.00	2,543	119	97	118	79
Light Mfg	Manufacturing (140)	430.00	1,689	255	72	115	204
Office	General Office Building (710)	430.00	3,978	541	74	95	465
Training / Ed.	Junior / Community College (540)	430.00	698	123	23	114	67
	Total		**23,959**	**1,736**	**782**	**1,763**	**2,119**

See Appendix Page A-5 thru A-14 for the Trip Generation Summary Table and Worksheets for this project.

Pass-by trips were not considered for this study in order to maintain a more conservative analysis.

BACKGROUND TRAFFIC GROWTH

Background traffic growth rates were considered for each individual approach to an intersection that was targeted for analysis based on data from the 2002 through 2011 Traffic Flow maps prepared by the Mid-Region Council of Governments. Most of the Traffic Flow Data for those years taken from the MRCOG Traffic Flow Maps were Standard Data. The data from those years for each approach was plotted on a graph and a linear "regression trend line" calculated using the equation format $y=mx+b$. The growth rate was determined by calculating the average volume increase per year during the time period considered and dividing that volume into the most recent AWDT used in the analysis from which future volumes will be calculated. The rate of growth of that trend line was utilized as the annual growth rate for each approach if that calculated rate appeared feasible. However, there were some instances where the rate indicated a negative growth trend or appeared to be unreasonably high or low. In those cases, an appropriate growth rate from an adjacent segment of the same roadway was used, a shorter time span was used to determine the growth rate, or the growth rate was considered to be 0.5% or a generic 1% if appropriate. Due to the limited potential for growth in the area, it was believed that a 0.5% growth rate was appropriate for this study. Therefore, a growth rate of 0.5% was used if the linear regression analysis showed the growth rate to be negative. Additionally, if the R^2 value of the trend line was low, other means of establishing a probable growth rate from the data accumulated was considered. Historical Growth Rate Graphs with linear regression trendlines are shown in the Appendix on Pages A-38 thru A-52. Additionally, the growth rate utilized for each approach to an intersection is printed at the top of the Turning Movement sheets for each intersection (Appendix Pages A-53 thru A-72).

PROJECTED PEAK HOUR TURNING MOVEMENTS FOR 2018 BUILDOUT

The calculated growth rates were applied to the most recent (2013) peak hour traffic counts to derive the 2018 AM and PM Peak Hour NO BUILD Volumes. To these volumes, the generated trips based on implementation of the proposed Site Development Plan (100% development) were added to obtain BUILD volumes for the intersection analyses. See Appendix Pages A-53 thru A-72 for further information regarding the turning movement counts.

TRIP DISTRIBUTION

Primary and Diverted Linked Trips:

Commercial Land Use

Primary and diverted linked trips for the commercial land use development were distributed proportionally to the 2018 projected population of Data Analysis Subzones within a two-mile radius of the proposed development. Population data for the years 2015 and 2035 were taken from the 2035 Socioeconomic Forecasts by Data Analysis Subzones for the MRCOG Region, supplied by the Mid-Region Council of Governments (MRCOG). Population data from the years 2015 and 2035 was interpolated linearly to obtain 2018 population data to utilize for this analysis. Population Subzones were grouped based on the most likely major street(s) or route(s) to the subject development. The trip distribution worksheets and associated map of subareas and data analysis subzones is shown on Appendix Pages A-30 thru A-37.

Office Land Use

Primary and diverted linked trips for the office land use development were distributed proportionally to the 2018 projected population of Subareas citywide. Population data for the years 2015 and 2035 were taken from the 2035 Socioeconomic Forecasts by Data Analysis Subzones for the MRCOG Region, supplied by the Mid-Region Council of Governments (MRCOG). Population data from the years 2015 and 2035 was interpolated linearly to obtain 2018 population data to utilize for this analysis. Population Subzones were grouped based on the most likely major street(s) or route(s) to the subject development. The trip distribution worksheets and associated map of subareas and data analysis subzones is shown on Appendix Pages A-23 thru A-39.

Residential Land Use

Primary and diverted linked trips for residential development have been distributed proportionally to the 2018 projected employment of Subareas citywide. Employment data for 2015 and 2035 were taken from the 2035 Socioeconomic Forecasts for Data Analysis Subzones for the MRCOG Region, supplied by the Mid-Region Council of Governments (MRCOG). Employment Data was interpolated linearly to obtain 2018 values and adjusted for distance from the proposed new facility. The trip distribution worksheets and associated map of subareas are shown in the Appendix Pages A-15 thru A-22.

RESULTS OF SIGNALIZED INTERSECTION CAPACITY ANALYSES

#1 – Gold Ave. / Second St. - Pages A-73 thru A-76

The results of the implementation year analysis of the signalized intersection of Gold Ave. / Second St. are summarized in the following table:

Intersection: 1 - GOLD AVE. / SECOND ST.

		2018 AM Peak Hour BUILD					2018 PM Peak Hour BUILD				
		(EXIST. GEOM.)					(EXIST. GEOM.)				
		NO BUILD		BUILD			NO BUILD		BUILD		
		Lanes	LOS-Delay	Lanes	LOS-Delay		Lanes	LOS-Delay	Lanes	LOS-Delay	
EB	L	>	B - 13.8	>	B - 17.4	L	>	B - 13.0	>	C - 25.9	
	T	1	B - 13.8	1	B - 17.4	T	1	B - 13.0	1	C - 25.9	
	R	>	B - 13.8	>	B - 17.4	R	>	B - 13.0	>	C - 25.9	
WB	L	>	B - 12.9	>	B - 15.4	L	>	B - 11.6	>	C - 21.6	
	T	1	B - 12.9	1	B - 15.4	T	1	B - 11.6	1	C - 21.6	
	R	>	B - 12.9	>	B - 15.4	R	>	B - 11.6	>	C - 21.6	
NB	L	1	A - 6.3	1	A - 4.3	L	1	A - 7.8	1	B - 16.0	
	T	1	B - 14.3	1	A - 8.9	T	1	B - 14.6	1	C - 23.3	
	R	>	B - 14.3	>	A - 8.9	R	>	B - 14.6	>	C - 23.3	
SB	L	1	A - 5.9	1	A - 6.1	L	1	A - 6.5	1	A - 9.8	
	T	1	A - 4.0	1	A - 6.3	T	1	A - 5.0	1	A - 6.4	
	R	>	A - 4.0	>	A - 6.3	R	>	A - 5.0	>	A - 6.4	
Intersection:		***B - 12.2***		***A - 9.4***			***B - 11.4***		***B - 18.2***		

Note: ">" designates a shared right or left turn lane.

The implementation year analysis of the intersection of Gold Ave. / Second St. demonstrates that the level-of-service will be acceptable for both the AM Peak Hour and PM Peak Hour NO BUILD and BUILD conditions. The implementation year analysis shows that the proposed development increases the delay at the intersection by 6.8 seconds. Therefore, this study concludes that the development presents no significant impact to the calculated delays at the intersection of Gold Ave. / Second St.

The following table summarizes the results of the queuing analysis for the auxiliary lanes at the intersection:

Queueing Analysis Summary Sheet

roject: Railyard Re-development (Second St S. of Hazeldine)

ıtersection: **Gold Ave SW / Second St**

2018

Approach	Left Turns			Thru Movements			Right Turns		
Eastbound	# Lanes	Vol.	Length	# Lanes	Vol.	Length	# Lanes	Vol.	Length
xisting Lane Length	*0*	*19*	*0*	*1*	*66*	*Cont*	*0*	*22*	*0*
M NO BUILD Queue	0	23	75	1	81	150	0	27	75
M BUILD Queue	**0**	**23**	**75**	**1**	**81**	**150**	**0**	**71**	**125**
xisting Lane Length	*0*	*50*	*0*	*1*	*99*	*Cont*	*0*	*15*	*0*
M NO BUILD Queue	0	61	125	1	121	200	0	18	**50**
M BUILD Queue	**0**	**61**	**125**	**1**	**121**	**200**	**0**	**75**	**125**
Westbound	# Lanes	Vol.	Length	# Lanes	Vol.	Length	# Lanes	Vol.	Length
xisting Lane Length	*0*	*14*	*0*	*1*	*22*	*Cont*	*0*	*21*	*0*
M NO BUILD Queue	0	14	50	1	23	75	0	22	50
M BUILD Queue	**0**	**14**	**50**	**1**	**23**	**75**	**0**	**22**	**50**
xisting Lane Length	*0*	*15*	*0*	*1*	*20*	*Cont*	*0*	*30*	*0*
M NO BUILD Queue	0	15	50	1	21	50	0	31	75
M BUILD Queue	**0**	**15**	**50**	**1**	**21**	**50**	**0**	**31**	**75**
Northbound	# Lanes	Vol.	Length	# Lanes	Vol.	Length	# Lanes	Vol.	Length
xisting Lane Length	*1*	*18*	*75*	*1*	*266*	*Cont*	*0*	*12*	*0*
M NO BUILD Queue	1	18	50	1	273	375	0	12	50
M BUILD Queue	**1**	**41**	**100**	**1**	**401**	**525**	**0**	**12**	**50**
xisting Lane Length	*1*	*13*	*75*	*1*	*204*	*Cont*	*0*	*21*	*0*
M NO BUILD Queue	1	13	**50**	1	209	**300**	0	22	50
M BUILD Queue	**1**	**72**	**125**	**1**	**583**	**675**	**0**	**22**	**50**
Southbound	# Lanes	Vol.	Length	# Lanes	Vol.	Length	# Lanes	Vol.	Length
xisting Lane Length	*1*	*25*	*100*	*1*	*58*	*Cont*	*0*	*13*	*0*
M NO BUILD Queue	1	26	75	1	59	125	0	13	50
M BUILD Queue	**1**	**26**	**75**	**1**	**382**	**500**	**0**	**13**	**50**
xisting Lane Length	*1*	*36*	*100*	*1*	*117*	*Cont*	*0*	*11*	*0*
M NO BUILD Queue	1	37	75	1	120	**200**	0	11	50
M BUILD Queue	**1**	**37**	**75**	**1**	**402**	**500**	**0**	**11**	**50**

	AM	PM
Cycle Length:	130	120

NOTE: Queue lengths are in feet.

The following table summarizes the recommendations of the queuing analysis for the auxiliary lanes at the intersection:

Lane Description	Existing Length (Ft)	NO BUILD Length (Ft)	BUILD Length (Ft)	Lengthen Existing Auxiliary Lane to:
Eastbound Left Turn:	0	125	125	No Recommendation
Eastbound Right Turn:*	0	40	60	No Recommendation
Westbound Left Turn:	0	50	50	No Recommendation
Westbound Right Turn:*	0	40	40	No Recommendation
Northbound Left Turn:	75	50	125	**125' plus transition.**
Northbound Right Turn:*	0	30	30	No Recommendation
Southbound Left Turn:	100	75	75	No Recommendation
Southbound Right Turn:*	0	30	30	No Recommendation

* - Calculated right turn queue lengths have been reduced by 50% to account for right-turns-on red and overlap phases.

The queuing analysis recommends that the northbound left turn lane be lengthened from 75 feet to 125 feet. This intersection is completely built out and there is no available right-of-way to construct this improvement. Therefore, no recommendations are made for the auxiliary lanes at the intersection of Gold Ave. / Second St.

#2 – Lead Ave. / Second St. - Pages A-77 thru A-82

The results of the implementation year analysis of the signalized intersection of Lead Ave. / Second St. are summarized in the following table:

Intersection: 2 - LEAD AVE. / SECOND ST.

2018 AM Peak Hour BUILD

		(EXIST. GEOM.) NO BUILD		(EXIST. GEOM.) BUILD		(MIT. GEOM.) BUILD	
		Lanes	LOS-Delay	Lanes	LOS-Delay	Lanes	LOS-Delay
EB	L	1	A - 8.3	1	C - 28.7	1	D - 53.0
	R	1	A - 4.9	1	B - 17.9	1	E - 61.3
WB	L	1	A - 5.2	1	D - 44.2	1	D - 40.1
	T	2	A - 6.8	2	C - 23.3	2	C - 26.4
	R	>	A - 6.8	>	C - 23.4	>	C - 26.4
NB	L	>	A - 10.0	>	D - 38.2	>	C - 20.2
	T	1	A - 10.0	1	D - 38.2	1	C - 20.2
SB	T	1	A - 7.5	1	D - 51.2	1	D - 47.8
	R	1	A - 6.6	1	C - 32.4	1	C - 30.3
Intersection:			***A - 7.4***		***D - 36.7***		***C - 34.1***

2018 PM Peak Hour BUILD

		(EXIST. GEOM.) NO BUILD		(EXIST. GEOM.) BUILD		(MIT. GEOM.) BUILD	
		Lanes	LOS-Delay	Lanes	LOS-Delay	Lanes	LOS-Delay
EB	L	1	A - 7.4	1	D - 42.7	1	D - 41.5
	R	1	A - 4.3	1	C - 26.1	1	D - 47.1
WB	L	1	A - 4.9	1	**F - 93.1**	1	E - 69.0
	T	2	A - 5.9	2	C - 34.2	2	C - 29.9
	R	>	A - 5.9	>	C - 34.3	>	C - 30.0
NB	L	>	B - 10.5	>	E - 77.5	>	D - 40.2
	T	1	B - 10.5	1	E - 77.5	1	D - 40.2
SB	T	1	B - 11.2	1	D - 36.3	1	A - 1.9
	R	1	A - 8.5	1	C - 23.0	1	A - 0.1
Intersection:			***A - 7.0***		***E - 55.8***		***C - 34.5***

Note: ">" designates a shared right or left turn lane.

The implementation year analysis of the intersection of Lead Ave. / Second St. demonstrates that the level-of-service will be acceptable for both the AM Peak Hour and PM Peak Hour NO BUILD conditions and for the AM Peak Hour BUILD conditions. The PM Peak Hour BUILD condition will experience excessive delays. The intersection can be mitigated by changing the westbound left turn lane signal type from permitted to permitted plus protected. This mitigation demonstrates an acceptable level-of-service for the PM Peak Hour BUILD condition. Signal modifications will probably be required.

The following table summarizes the results of the queuing analysis for the auxiliary lanes at the intersection:

Queueing Analysis Summary Sheet

Project: Railyard Re-development (Second St S. of Hazeldine)

Intersection: **Lead Ave SW / Second St**

2018

Approach	Left Turns # Lanes	Vol.	Length	Thru Movements # Lanes	Vol.	Length	Right Turns # Lanes	Vol.	Length
Eastbound									
Existing Lane Length	*1*	*9*	*125*	*1*	*0*	*Cont*	*0*	*11*	*0*
AM NO BUILD Queue	1	9	25	1	0	0	0	11	50
AM BUILD Queue	**1**	**9**	**25**	**1**	**0**	**0**	**0**	**66**	**125**
Existing Lane Length	*1*	*7*	*125*	*1*	*0*	*Cont*	*0*	*30*	*0*
PM NO BUILD Queue	1	7	25	1	0	0	0	31	**75**
PM BUILD Queue	**1**	**7**	**25**	**1**	**0**	**0**	**0**	**102**	**175**
Westbound									
Existing Lane Length	*1*	*55*	*590*	*2*	*581*	*Cont*	*0*	*73*	*0*
AM NO BUILD Queue	1	56	125	2	596	450	0	75	150
AM BUILD Queue	**1**	**452**	**575**	**2**	**596**	**450**	**0**	**75**	**150**
Existing Lane Length	*1*	*109*	*590*	*2*	*691*	*Cont*	*0*	*74*	*0*
PM NO BUILD Queue	1	112	**175**	2	708	475	0	76	125
PM BUILD Queue	**1**	**420**	**500**	**2**	**708**	**475**	**0**	**76**	**125**
Northbound									
Existing Lane Length	*0*	*7*	*0*	*1*	*203*	*Cont*	*0*	*0*	*0*
AM NO BUILD Queue	0	7	25	1	208	300	0	0	0
AM BUILD Queue	**0**	**36**	**75**	**1**	**359**	**475**	**0**	**0**	**0**
Existing Lane Length	*0*	*9*	*0*	*1*	*141*	*Cont*	*0*	*0*	*0*
PM NO BUILD Queue	0	9	**25**	1	145	**225**	0	0	0
PM BUILD Queue	**0**	**82**	**150**	**1**	**578**	**675**	**0**	**0**	**0**
Southbound									
Existing Lane Length	*0*	*0*	*0*	*1*	*64*	*Cont*	*1*	*15*	*170*
AM NO BUILD Queue	0	0	0	1	66	125	1	15	50
AM BUILD Queue	**0**	**0**	**0**	**1**	**433**	**550**	**1**	**15**	**50**
Existing Lane Length	*0*	*0*	*0*	*1*	*120*	*Cont*	*1*	*28*	*170*
PM NO BUILD Queue	0	0	0	1	123	**200**	1	29	75
PM BUILD Queue	**0**	**0**	**0**	**1**	**462**	**550**	**1**	**29**	**75**

	AM	PM
Cycle Length:	130	120

NOTE: Queue lengths are in feet.

The following table summarizes the recommendations of the queuing analysis for the auxiliary lanes at the intersection:

Lane Description	Existing Length (Ft)	NO BUILD Length (Ft)	BUILD Length (Ft)	Lengthen Existing Auxiliary Lane to:
Eastbound Left Turn:	125	25	25	No Recommendation
Eastbound Right Turn:*	0	40	90	No Recommendation
Westbound Left Turn:	590	175	575	No Recommendation
Westbound Right Turn:*	0	80	80	No Recommendation
Northbound Left Turn:	0	25	150	No Recommendation
Northbound Right Turn:*	0	0	0	No Recommendation
Southbound Left Turn:	0	0	0	No Recommendation
Southbound Right Turn:*	170	40	40	No Recommendation

* - Calculated right turn queue lengths have been reduced by 50% to account for right-turns-on red and overlap phases.

There are no recommendations for the auxiliary lanes at the intersection of Lead Ave. / Second St.

#3 – Coal Ave. / Second St. - Pages A-83 thru A-86

The results of the implementation year analysis of the signalized intersection of Coal Ave. / Second St. are summarized in the following table:

Intersection: 3 - COAL AVE. / SECOND ST.

		2018 AM Peak Hour BUILD (EXIST. GEOM.)				2018 PM Peak Hour BUILD (EXIST. GEOM.)			
		NO BUILD		BUILD		NO BUILD		BUILD	
		Lanes	LOS-Delay	Lanes	LOS-Delay	Lanes	LOS-Delay	Lanes	LOS-Delay
EB	L	>	B - 10.1	>	D - 53.4	>	A - 7.9	>	E - 67.1
	T	3	A - 9.8	3	D - 48.1	3	A - 7.7	3	E - 57.6
	R	>	A - 9.8	>	D - 48.7	>	A - 7.7	>	E - 59.2
NB	L	1	A - 7.2	1	C - 35.0	1	A - 8.3	1	A - 6.2
	T	1	B - 13.1	1	B - 12.3	1	A - 9.6	1	C - 29.7
	R	>	B - 13.1	>	B - 12.3	>	A - 9.6	>	C - 29.7
SB	L	1	A - 6.2	1	B - 19.0	1	A - 6.2	1	E - 79.0
	T	1	A - 3.0	1	B - 13.5	1	A - 5.7	1	A - 1.9
	R	>	A - 3.0	>	B - 13.5	>	A - 5.7	>	A - 1.9
Intersection:		***B - 10.2***		***C - 24.9***		***A - 7.6***		***C - 30.3***	

Note: ">" designates a shared right or left turn lane.

The implementation year analysis of the intersection of Coal Ave. / Second St. demonstrates that the level-of-service will be acceptable for both the AM Peak Hour and PM Peak Hour NO BUILD and BUILD conditions. The implementation year analysis shows that the proposed development increases the delay at the intersection by 14.7 to 26.5 seconds. Therefore, this study concludes that the development presents no significant impact to the calculated delays at the intersection of Coal Ave. / Second St.

The following table summarizes the results of the queuing analysis for the auxiliary lanes at the intersection:

Queueing Analysis Summary Sheet

Project: Railyard Re-development (Second St S. of Hazeldine)

Intersection: **Coal Ave SW / Second St**

2018

Approach	Left Turns			Thru Movements				Right Turns		
Eastbound	# Lanes	Vol.	Length	# Lanes	Vol.	Length		# Lanes	Vol.	Length
Existing Lane Length	*0*	*28*	*0*	*3*	*582*	*Cont*		*0*	*8*	*0*
AM NO BUILD Queue	0	31	75	3	637	350		0	9	25
AM BUILD Queue	**0**	**31**	**75**	**3**	**637**	**350**		**0**	**70**	**125**
Existing Lane Length	*0*	*19*	*0*	*3*	*611*	*Cont*		*0*	*10*	*0*
PM NO BUILD Queue	0	21	50	3	669	350		0	11	**50**
PM BUILD Queue	**0**	**21**	**50**	**3**	**669**	**350**		**0**	**92**	**150**
Westbound	# Lanes	Vol.	Length	# Lanes	Vol.	Length		# Lanes	Vol.	Length
Existing Lane Length	*0*	*0*	*0*	*0*	*0*	*Cont*		*0*	*0*	*0*
AM NO BUILD Queue	0	0	0	0	0	0		0	0	0
AM BUILD Queue	**0**	**0**	**0**	**0**	**0**	**0**		**0**	**0**	**0**
Existing Lane Length	*0*	*0*	*0*	*0*	*0*	*Cont*		*0*	*0*	*0*
PM NO BUILD Queue	0	0	0	0	0	0		0	0	0
PM BUILD Queue	**0**	**0**	**0**	**0**	**0**	**0**		**0**	**0**	**0**
Northbound	# Lanes	Vol.	Length	# Lanes	Vol.	Length		# Lanes	Vol.	Length
Existing Lane Length	*1*	*7*	*75*	*1*	*246*	*Cont*		*0*	*101*	*0*
AM NO BUILD Queue	1	7	25	1	252	350		0	104	175
AM BUILD Queue	**1**	**40**	**100**	**1**	**433**	**550**		**0**	**249**	**350**
Existing Lane Length	*1*	*18*	*75*	*1*	*119*	*Cont*		*0*	*70*	*0*
PM NO BUILD Queue	1	18	**50**	1	122	**200**		0	72	**125**
PM BUILD Queue	**1**	**101**	**175**	**1**	**628**	**725**		**0**	**514**	**600**
Southbound	# Lanes	Vol.	Length	# Lanes	Vol.	Length		# Lanes	Vol.	Length
Existing Lane Length	*1*	*34*	*75*	*1*	*74*	*Cont*		*0*	*15*	*0*
AM NO BUILD Queue	1	35	75	1	76	150		0	15	50
AM BUILD Queue	**1**	**35**	**75**	**1**	**892**	**>1,000**	*	**0**	**15**	**50**
Existing Lane Length	*1*	*99*	*75*	*1*	*171*	*Cont*		*0*	*29*	*0*
PM NO BUILD Queue	1	101	175	1	175	**250**		0	30	75
PM BUILD Queue	**1**	**101**	**175**	**1**	**893**	**>1,000**	*	**0**	**30**	**75**

	AM	PM
Cycle Length:	130	120

NOTE: Queue lengths are in feet.

The following table summarizes the recommendations of the queuing analysis for the auxiliary lanes at the intersection:

Lane Description	Existing Length (Ft)	NO BUILD Length (Ft)	BUILD Length (Ft)	Lengthen Existing Auxiliary Lane to:
Eastbound Left Turn:	0	75	75	No Recommendation
Eastbound Right Turn:*	0	30	80	No Recommendation
Westbound Left Turn:	0	0	0	No Recommendation
Westbound Right Turn:*	0	0	0	No Recommendation
Northbound Left Turn:	75	50	175	**175' plus transition.**
Northbound Right Turn:*	0	90	300	No Recommendation
Southbound Left Turn:	75	175	175	**175' plus transition.**
Southbound Right Turn:*	0	40	40	No Recommendation

* - Calculated right turn queue lengths have been reduced by 50% to account for right-turns-on red and overlap phases.

The queuing analysis recommends that the northbound and southbound left turn lanes be lengthened from 75 feet to 175 feet. This intersection is completely built out and there is no available right-of-way to construct this improvement. Furthermore, lengthening the northbound left turn lane would adversely impact the southbound left turn at the intersection of Iron Ave. / Second St. Therefore, no recommendations are made for the auxiliary lanes at the intersection of Coal Ave. / Second St.

#4 – Bridge Blvd. / Third St. - Pages A-87 thru A-92

The results of the implementation year analysis of the signalized intersection of Bridge Blvd. / Third St. are summarized in the following table:

Intersection: **4 - BRIDGE BLVD. / THIRD ST.**

		2018 AM Peak Hour BUILD						2018 PM Peak Hour BUILD					
		(EXIST. GEOM.)				(MIT. GEOM.)		(EXIST. GEOM.)				(MIT. GEOM.)	
		NO BUILD		BUILD		BUILD		NO BUILD		BUILD		BUILD	
		Lanes	LOS-Delay	Lanes	LOS-Delay	Lanes	LOS-Delay	Lanes	LOS-Delay	Lanes	LOS-Delay	Lanes	LOS-Delay
EB	L	>	A - 3.5	>	A - 6.8	>	D - 37.3	>	A - 8.5	>	B - 15.3	>	C - 24.9
	T	2	A - 3.6	2	A - 7.0	2	D - 41.7	2	A - 8.6	2	B - 15.6	2	C - 25.5
	R	1	A - 1.5	1	A - 3.4	1	B - 15.0	1	A - 5.9	1	B - 12.1	1	B - 19.1
WB	L	1	B - 11.0	1	**F - 402**	1	**F - 105**	1	B - 13.9	1	**F - 102**	1	C - 26.2
	T	1	A - 1.9	1	A - 4.4	1	A - 8.4	1	B - 10.7	1	C - 32.1	1	C - 28.9
	R	2	A - 1.9	2	A - 4.5	2	A - 8.5	2	B - 10.7	2	D - 44.1	2	D - 38.9
NB	L	>	D - 47.3	>	E - 55.8	>	D - 53.5	>	D - 44.6	>	D - 35.4	>	D - 48.6
	T	1	D - 47.3	1	E - 55.8	1	D - 53.5	1	D - 44.6	1	D - 35.4	1	D - 48.6
	R	1	D - 50.0	1	**F - 177**	1	**F - 177**	1	C - 31.1	1	E - 58.6	1	**F - 194**
SB	L	>	D - 50.9	>	**F - 390**	1	D - 49.0	>	D - 38.3	>	**F - 471**	1	**F - 147**
	T	1	D - 50.9	1	**F - 390**	1	D - 44.9	1	D - 38.3	1	**F - 471**	1	C - 33.1
	R	>	D - 50.9	>	**F - 390**	>	D - 44.9	>	D - 38.3	>	**F - 471**	>	C - 33.1
Intersection:		***A - 5.1***		***E - 56.6***		***D - 39.8***		***B - 12.1***		***E - 76.8***		***D - 52.0***	

Note: ">" designates a shared right or left turn lane.

The implementation year analysis of the intersection of Bridge Blvd. / Third St. demonstrates that the level-of-service will be acceptable for both the AM Peak Hour and PM Peak Hour NO BUILD conditions and will experience excessive delays for the AM Peak Hour and PM Peak Hour BUILD conditions. The intersection can be partially mitigated by adding a 200 foot southbound left turn lane with a permitted plus protected turn signal. This mitigation demonstrates acceptable levels-of-service for both the AM Peak Hour and PM Peak Hour BUILD conditions. No other improvements are physically possible at this intersection.

The following table summarizes the results of the queuing analysis for the auxiliary lanes at the intersection:

Queueing Analysis Summary Sheet

Project: Railyard Re-development (Second St S. of Hazeldine)

Intersection: **Bridge Blvd / Third St**

2018

Approach	Left Turns			Thru Movements				Right Turns		
Eastbound	# Lanes	Vol.	Length	# Lanes	Vol.	Length		# Lanes	Vol.	Length
Existing Lane Length	*0*	*1*	*0*	*2*	*1,544*	*Cont*		*1*	*123*	*260*
AM NO BUILD Queue	0	1	0	2	1,583	>1,000	*	1	126	200
AM BUILD Queue	**0**	**1**	**0**	**2**	**1,583**	**>1,000**	*	**1**	**276**	**375**
Existing Lane Length	*0*	*0*	*0*	*2*	*1,083*	*Cont*		*1*	*64*	*260*
PM NO BUILD Queue	0	0	0	2	1,110	700		1	66	**125**
PM BUILD Queue	**0**	**0**	**0**	**2**	**1,110**	**700**		**1**	**249**	**325**
Westbound	# Lanes	Vol.	Length	# Lanes	Vol.	Length		# Lanes	Vol.	Length
Existing Lane Length	*1*	*57*	*50*	*2*	*723*	*Cont*		*0*	*12*	*0*
AM NO BUILD Queue	1	58	125	2	741	525		0	12	50
AM BUILD Queue	**1**	**217**	**325**	**2**	**741**	**525**		**0**	**358**	**475**
Existing Lane Length	*1*	*45*	*50*	*2*	*1,498*	*Cont*		*0*	*31*	*0*
PM NO BUILD Queue	1	46	**100**	2	1,535	>1,000	*	0	32	**75**
PM BUILD Queue	**1**	**200**	**275**	**2**	**1,535**	**>1,000**	*	**0**	**380**	**475**
Northbound	# Lanes	Vol.	Length	# Lanes	Vol.	Length		# Lanes	Vol.	Length
Existing Lane Length	*0*	*14*	*0*	*1*	*2*	*Cont*		*1*	*34*	*80*
AM NO BUILD Queue	0	14	50	1	2	0		1	35	75
AM BUILD Queue	**0**	**55**	**125**	**1**	**2**	**0**		**1**	**188**	**275**
Existing Lane Length	*0*	*59*	*0*	*1*	*2*	*Cont*		*1*	*22*	*80*
PM NO BUILD Queue	0	60	**125**	1	2	0		1	23	**50**
PM BUILD Queue	**0**	**166**	**250**	**1**	**2**	**0**		**1**	**448**	**550**
Southbound	# Lanes	Vol.	Length	# Lanes	Vol.	Length		# Lanes	Vol.	Length
Existing Lane Length	*0*	*9*	*0*	*1*	*20*	*Cont*		*0*	*30*	*0*
AM NO BUILD Queue	0	9	25	1	21	50		0	31	75
AM BUILD Queue	**0**	**75**	**150**	**1**	**21**	**50**		**0**	**65**	**125**
Existing Lane Length	*0*	*12*	*0*	*1*	*52*	*Cont*		*0*	*84*	*0*
PM NO BUILD Queue	0	12	**50**	1	53	100		0	86	**150**
PM BUILD Queue	**0**	**199**	**275**	**1**	**53**	**100**		**0**	**176**	**250**

	AM	PM
Cycle Length:	130	120

NOTE: Queue lengths are in feet.

The following table summarizes the recommendations of the queuing analysis for the auxiliary lanes at the intersection:

Lane Description	Existing Length (Ft)	NO BUILD Length (Ft)	BUILD Length (Ft)	Lengthen Existing Auxiliary Lane to:
Eastbound Left Turn:	0	0	0	No Recommendation
Eastbound Right Turn:*	260	100	190	No Recommendation
Westbound Left Turn:	50	125	325	**325' plus transition.**
Westbound Right Turn:*	0	40	240	No Recommendation
Northbound Left Turn:	0	125	250	No Recommendation
Northbound Right Turn:*	80	40	280	**280' plus transition.**
Southbound Left Turn:	0	50	275	No Recommendation
Southbound Right Turn:*	0	80	130	No Recommendation

* - Calculated right turn queue lengths have been reduced by 50% to account for right-turns-on red and overlap phases.

The queuing analysis recommends that the westbound left turn lane be lengthened from 50 feet to 325 feet and the northbound left turn lane be lengthened from 80 feet to 280 feet. Lengthening the westbound left turn lane is not feasible without widening the bridge along Bridge Blvd. Lengthening the northbound left turn lane would adversely impact the eastbound left turn lane at First St. Therefore, no recommendations are made for the auxiliary lanes at the intersection of Bridge Blvd. / Third St.

RESULTS OF UNSIGNALIZED INTERSECTION CAPACITY ANALYSES

#5 –Santa Fe Ave. / Second St. – Pages A-93 thru A-98

The results of the analysis of the unsignalized intersection of Santa Fe Ave. / Second St. are summarized in the following table:

Intersection: 5 - SANTA FE AVE. / SECOND ST.

		2018 AM Peak Hour BUILD (EXIST. GEOM.)				2018 PM Peak Hour BUILD (EXIST. GEOM.)			
		NO BUILD		BUILD		NO BUILD		BUILD	
		Lanes	LOS-Delay	Lanes	LOS-Delay	Lanes	LOS-Delay	Lanes	LOS-Delay
EB	L	1	A - 9.8	1	F - 195	1	A - 9.7	1	F - 999
	R	>	A - 9.8	>	F - 195	>	A - 9.7	>	F - 999
NB	L	>	A - 7.4	>	A - 9.9	>	A - 7.6	>	B - 12.2
	T	1	A - 7.4	1	A - 9.9	1	A - 7.6	1	B - 12.2
Intersection:		*u - N/A*		*u - N/A*		*u - N/A*		*u - N/A*	

Note: ">" designates a shared right or left turn lane.

This analysis indicates that the tee intersection will operate at acceptable levels-of-service in the implementation year (2018) for both the AM Peak Hour and PM Peak Hour NO BUILD conditions and will experience excessive delays for both the AM Peak Hour and PM Peak Hour BUILD conditions. The delays for the eastbound shared left/right turn movement are so excessive during the PM Peak Hour that Synchro 8 cannot calculate the actual delay. This intersection can be improved by constructing a single lane roundabout as demonstrated in the following table.

2018 Peak Hour BUILD

		(MIT. GEOM.) AM BUILD			PM BUILD		
		Lanes	LOS	Delay	Lanes	LOS	Delay
EB	LR	1	B	11.2	1	C	22.5
NB	LT	1	E	45.9	1	F	131
SB	TR	1	C	19.8	1	F	108
Intersection:		*u - N/A*			*u - N/A*		

#6 –Hazeldine Ave. / Second St. – Pages A-99 thru A-104

The results of the analysis of the unsignalized intersection of Hazeldine Ave. / Second St. are summarized in the following table:

Intersection: 6 - HAZELDINE AVE. / SECOND ST.

2018 AM Peak Hour BUILD

		(EXIST. GEOM.) NO BUILD		(EXIST. GEOM.) BUILD		(MIT. GEOM.) BUILD	
		Lanes	LOS-Delay	Lanes	LOS-Delay	Lanes	LOS-Delay
EB	L	>	B - 12.0	>	**F** - 999	1	D - 41.4
	T	1	B - 12.0	1	**F** - 999	1	E - 68.4
	R	>	B - 12.0	>	**F** - 999	>	E - 68.4
WB	L	>	B - 12.7	>	**F** - 999	1	D - 38.9
	T	1	B - 12.7	1	**F** - 999	1	D - 40.2
	R	>	B - 12.7	>	**F** - 999	1	D - 41.5
NB	L	>	A - 7.4	>	A - 8.8	1	B - 14.2
	T	1	A - 7.4	1	A - 8.8	1	C - 24.9
	R	>	A - 7.4	>	A - 8.8	1	B - 12.3
SB	L	>	A - 8.3	>	C - 20.1	1	C - 22.1
	T	1	A - 8.3	1	C - 20.1	1	B - 10.3
	R	>	A - 8.3	>	C - 20.1	>	B - 10.3
Intersection:		***u - N/A***		***u - N/A***		***C - 24.9***	

2018 PM Peak Hour BUILD

		(EXIST. GEOM.) NO BUILD		(EXIST. GEOM.) BUILD		(MIT. GEOM.) BUILD	
		Lanes	LOS-Delay	Lanes	LOS-Delay	Lanes	LOS-Delay
EB	L	>	B - 10.2	>	**F** - 999	1	D - 45.0
	T	1	B - 10.2	1	**F** - 999	1	**F** - 172
	R	>	B - 10.2	>	**F** - 999	>	**F** - 172
WB	L	>	B - 10.8	>	**F** - 999	1	**F** - 183
	T	1	B - 10.8	1	**F** - 999	1	D - 44.8
	R	>	B - 10.8	>	**F** - 999	1	**F** - 88.7
NB	L	>	A - 7.5	>	A - 9.0	>	B - 10.6
	T	1	A - 7.5	1	A - 9.0	1	E - 62.3
	R	>	A - 7.5	>	A - 9.0	>	A - 9.7
SB	L	>	A - 7.6	>	C - 22.0	1	**F** - 158
	T	1	A - 7.6	1	C - 22.0	1	A - 3.2
	R	>	A - 7.6	>	C - 22.0	>	A - 3.2
Intersection:		***u - N/A***		***u - N/A***		***E - 69.5***	

Note: ">" designates a shared right or left turn lane.

This analysis indicates that the full intersection, which will also be the northernmost driveway of the proposed development, will operate at acceptable levels-of-service in the implementation year (2018) for both the AM Peak Hour and PM Peak Hour NO BUILD conditions and will experience excessive delays for the AM Peak Hour and PM Peak Hour BUILD conditions for the eastbound and westbound movements. The delays for the eastbound and westbound shared left/thru/right turn movements are so excessive during the AM Peak Hour and PM Peak Hour that Synchro 8 cannot calculate the actual delay. This intersection can be improved by constructing second northern driveway for the proposed development at the intersection of Atlantic Ave. / Second St. and by constructing a traffic signal as demonstrated in the table above. Coal Ave. / Second St. is the nearest signalized intersection and is approximately 1,000 feet to the north. Stover Ave. / Second St. is the nearest unsignalized intersection to the north and is approximately 360 feet away from the Hazeldine Ave. / Second St. intersection. Atlantic Ave. / Second St. is the nearest unsignalized intersection and is approximately 300 feet to the south. The analysis of the Atlantic Ave. / Second St. intersection is discussed in the #9 - Atlantic Ave. / Second St. section on Page 22.

#7 –Driveway 'A' / Second St. – Pages A-105 thru A-108

The results of the analysis of the unsignalized intersection of Driveway 'A' / Second St. are summarized in the following table:

Intersection: 7 - DRIVEWAY 'A' / SECOND ST.

2018 Peak Hour BUILD

		(EXIST. GEOM.) AM BUILD		(EXIST. GEOM.) PM BUILD	
		Lanes	LOS-Delay	Lanes	LOS-Delay
WB	L	1	**F** - 999	1	**F** - 999
	R	>	**F** - 999	>	**F** - 999
SB	L	>	B - 14.7	>	B - 14.5
	T	1	B - 14.7	1	B - 14.5
Intersection:		***u - 0.0***		***u - N/A***	

Note: ">" designates a shared right or left turn lane.

This analysis indicates that the driveway will experience excessive delays for both the AM Peak Hour and PM Peak Hour BUILD conditions for the westbound movement. The delays for the westbound shared left/right turn movement are so excessive during the AM Peak Hour and PM Peak Hour that Synchro 8 cannot calculate the actual delay. This intersection can be improved by constructing a single lane roundabout as demonstrated in the following table.

2018 Peak Hour BUILD

		(MIT. GEOM.) AM BUILD		(MIT. GEOM.) PM BUILD	
		Lanes	LOS-Delay	Lanes	LOS-Delay
WB	LR	1	C - 17.0	1	**F** - 131
NB	TR	1	**F** - 148	1	**F** - 139
SB	LT	1	D - 26.9	1	**F** - 222
Intersection:		***u - N/A***		***u - N/A***	

#8 –Driveway 'B' / Second St. – Pages A-109 thru A-112

The results of the analysis of the unsignalized intersection of Driveway 'B' / Second St. are summarized in the following table:

Intersection: 8 - DRIVEWAY 'B' / SECOND ST.

2018 Peak Hour BUILD

		(EXIST. GEOM.) AM BUILD Lanes	LOS-Delay	PM BUILD Lanes	LOS-Delay
WB	L	1	F - 999	>	F - 999
	R	>	F - 999	>	F - 999
SB	L	>	B - 14.3	>	B - 11.4
	T	1	B - 14.3	1	B - 11.4
Intersection:		u - 0.0		u - N/A	

Note: ">" designates a shared right or left turn lane.

This analysis indicates that the driveway will experience excessive delays for both the AM Peak Hour and PM Peak Hour BUILD conditions for the westbound movement. The delays for the westbound shared left/right turn movement are so excessive during the AM Peak Hour and PM Peak Hour that Synchro 8 cannot calculate the actual delay. This intersection can be improved by constructing a single lane roundabout as demonstrated in the following table.

2018 Peak Hour BUILD

		(MIT. GEOM.) AM BUILD Lanes	LOS-Delay	PM BUILD Lanes	LOS-Delay
WB	LR	1	C - 15.4	1	C - 22.0
NB	TR	1	F - 136	1	E - 35.9
SB	LT	1	B - 11.1	1	F - 89.4
Intersection:		u - N/A		u - N/A	

#9 –Atlantic Ave. / Second St. – Pages A-113 thru A-114

This intersection will be used as a second northern driveway for the proposed development to improve the delays at the intersection (northern most driveway) of Hazeldine Ave. / Second St. The results of the analysis of the unsignalized intersection of Atlantic Ave. / Second St. are summarized in the following table:

Intersection: 9 - ATLANTIC AVE. / SECOND ST.

2018 Peak Hour BUILD

		(MIT. GEOM.) AM BUILD Lanes	LOS-Delay	PM BUILD Lanes	LOS-Delay
EB	LTR	1	C - 28.2	1	E - 57.4
WB	LTR	1	B - 16.9	1	F - 391
NB	LTR	1	F - 225	1	F - 317
SB	LTR	1	E - 64.8	1	F - 297
Intersection:		u - N/A		u - N/A	

This intersection was analyzed as a single lane roundabout. The analysis indicates that the driveway will experience excessive delays for both the AM Peak Hour and PM Peak Hour BUILD conditions. But is necessary to improve the delays at Hazeldine Ave. / Second St.

It should be noted that Levels of Service (LOS) for unsignalized intersections cannot be compared directly with Levels of Service for signalized intersections. LOS for unsignalized intersections is based on reserve capacity, which is converted to generalized levels of delay; LOS for signalized intersections is based on actual delay in seconds.

LEVEL-OF-SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS

Average Delay (secs)	Level-of-Service
≤ 10	A
> 10 and ≤ 20	B
> 20 and ≤ 35	C
> 35 and ≤ 55	D
> 55 and ≤ 80	E
> 80	F

LEVEL-OF-SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS

Average Delay (secs)	Level-of-Service
≤ 10	A
> 10 and ≤ 15	B
> 15 and ≤ 25	C
> 25 and ≤ 35	D
> 35 and ≤ 50	E
> 50	F

Generally speaking, a Level-of-Service D or better is an acceptable parameter for design purposes.

CONCLUSIONS

This analysis demonstrates that the existing signalized intersections of Gold Ave. / Second St., Lead Ave. / Second St. Coal Ave. / Second St., and Bridge Blvd. / Third St. will operate at acceptable levels-of-service with some mitigation. The existing unsignalized intersections of Hazeldine Ave. / Second St., Santa Fe Ave. / Second St., and Atlantic Ave. / Second St. will require more substantial improvements and will still experience long delays for some of the turning movements upon implementation of the proposed project along with Driveways 'A' and 'B'.

Utilizing projected traffic volumes resulting from the development of this site into a mixed use facility such as the one shown on Page A-3 in the Appendix in conjunction with projected 2018 traffic volumes this report concludes that development of the subject site will have no significant adverse impact on the existing signalized intersections of the adjacent transportation system and will have moderate adverse impacts to the existing unsignalized intersections of the adjacent transportation system, provided that the following recommendations are followed:

RECOMMENDATIONS

- Design of the site should maintain adequate sight distances for traffic approaching, entering, and exiting the site from the proposed driveways.
- All driveways should be constructed utilizing 30 feet minimum radius curb returns or larger if needed to accommodate delivery trucks. The new development should be implemented utilizing at least four driveways for access - the intersections of Hazeldine Ave. / Second St. and Atlantic Ave. / Second St. and Driveway 'A' and 'B' (from Second St.). The driveway (Hazeldine Ave. / Second St. intersection) should be signalized and the others should be constructed as single lane roundabouts.
- #2 – Lead Ave. / Second St. – Change the westbound left turn signalized movement from permitted to permitted plus protected.
- #4 – Bridge Blvd. / Third St. – Construct a 200 foot long southbound left turn lane along Second St. with a permitted plus protected left turn signal.
- #5 – Santa Fe Ave. / Second St. – Construct as a single lane roundabout.
- #6 – Hazeldine Ave. / Second St. - Construct as a signalized intersection with the mitigated geometry described on Page 19.
- #9 – Atlantic Ave. / Second St. – Construct a single lane roundabout with a driveway to the proposed development.

APPENDIX C: PHOTOGRAPHIC SURVEY OF HISTORIC STRUCTURES

Appendix C provides a photographic summary of some of the historic buildings and structures on the Rail Yards site. There are a number of historic documents that address the site. Rather than compiling an exhaustive list, this appendix focuses on information that would be pertinent in the future adaptive reuse of the site. Some is technical pulled from literature, some is based on site observation. The photographic survey was conducted in 2011 by Giora Solar.

The current configuration of the Rail Yards site was constructed between 1915 and 1925 and represented the height of modern industrial design and achievement at the time. The photographic survey covers several of the buildings and structures to be preserved: the Machine Shop (1921), the Boiler Shop (1923), the Blacksmith Shop (1917), the Flue Shop (1920), the Tank Shop (also known as the Tender Repair, 1925), the Firehouse (1920), the Transfer Table (1919), the Storehouse and its platform (1915), the Turntable (1915) and the Bridge Crane (also known as the Crane Runway and the Gantry Crane, 1921).



Aerial photograph showing the historic buildings and structures to be preserved.



MACHINE SHOP

Built in 1921. A footprint of 139,316sf and includes a partial mezzanine in the Bench Bay. Divided into 4 bays, with an exterior 5th bay at the South for unloading, also known as the Crane Runway.

Entirely glazed north and south façades. ¼" thick, single glazed panels, 14"x20", set in steel sashes. Partially glazed East and West façades set into reinforced concrete frames.

The Lower 18' of the north façade contains continuous bi-fold steel frame doors, supported on rollers, that allowed the locomotives to move from Machine Shop to the exterior Transfer Table.

Mechanically operated natural ventilation, large crank/pulley devices controlled multiple operable sashes at once. Equipment looks to be in decent shape.

Rooftop skylights allowing no direct sun. Single glazed, ribbed, wire glass. Skylights are also mechanically operable on one side only. Almost all panels are broken, resulting from apparent vandalism (target practice).

2 large mechanical rooms contained two large electrical fans providing 90,000cfm and 68,000cfm respectively, capable of 3 complete air changes per hour. Air was forced across steam heated coils when required for heating load. Ductwork throughout structure followed column lines to the distribution point 7' above floor.

Flooring: 6" concrete slab, finished to a true surface, primed with a 1/8" bituminous coating, upon which 3" creosoted (distillate derived entirely from tars produced from the carbonization of bituminous coal) end-grain wood blocks were laid, with pitch interlaid between for waterproofing. Wood floor is in poor condition and creosote is carcinogenic.

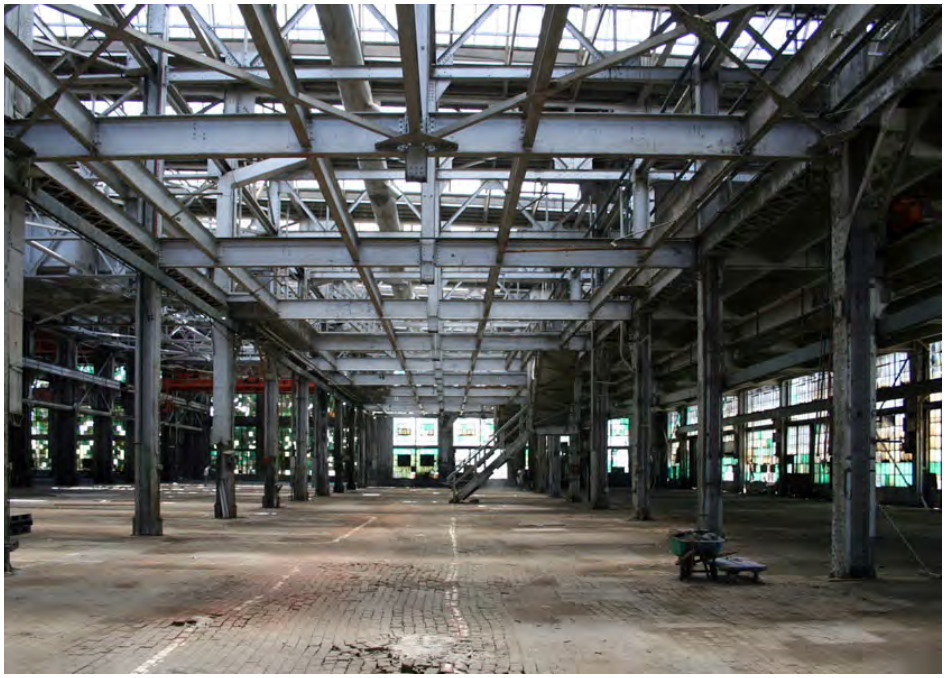
Steel Frame Structure, columns designed to support 16 tons each. Each column is supported on a concrete foundation supported upon creosoted wooded piles, driven on average 26' into the earth. Frame also supports various cranes, still intact, not known if still operable, largest crane supports 250 tons.

Building contained 3 electric Otis elevators serving one Mezzanine Level that was historically used for offices and files. Elevators have been removed, only shafts remain.

Roof is double sheathed with built-up roofing. Roof surface is in poor condition although the Machine Shop roof looks to be in better shape than other buildings on-site.



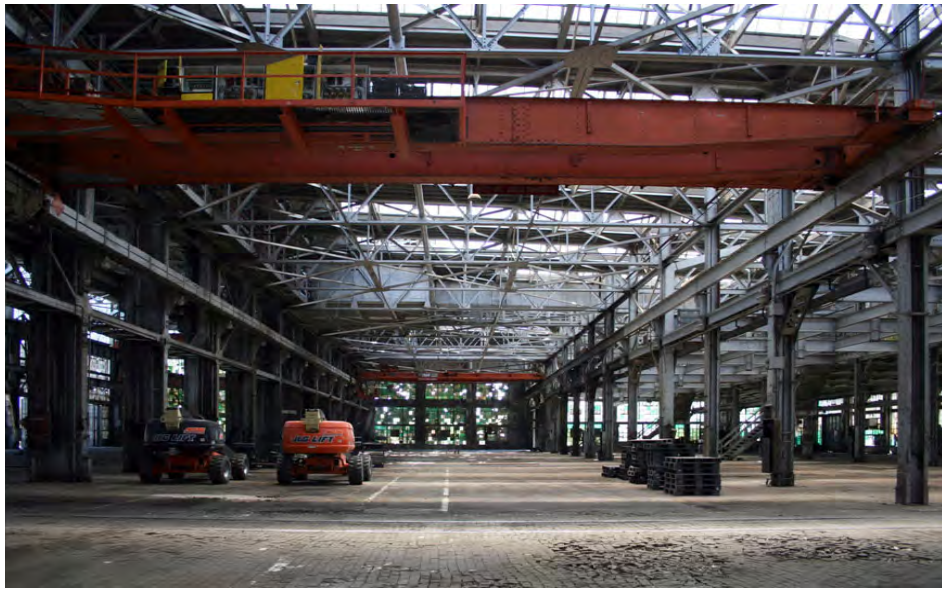
Machine Shop, Bench Bay - Below board formed, cast in place, concrete mezzanine.



Machine Shop, Light Machinery Bay, Pyramidal skylights run between the Heavy and Light Machinery Bays



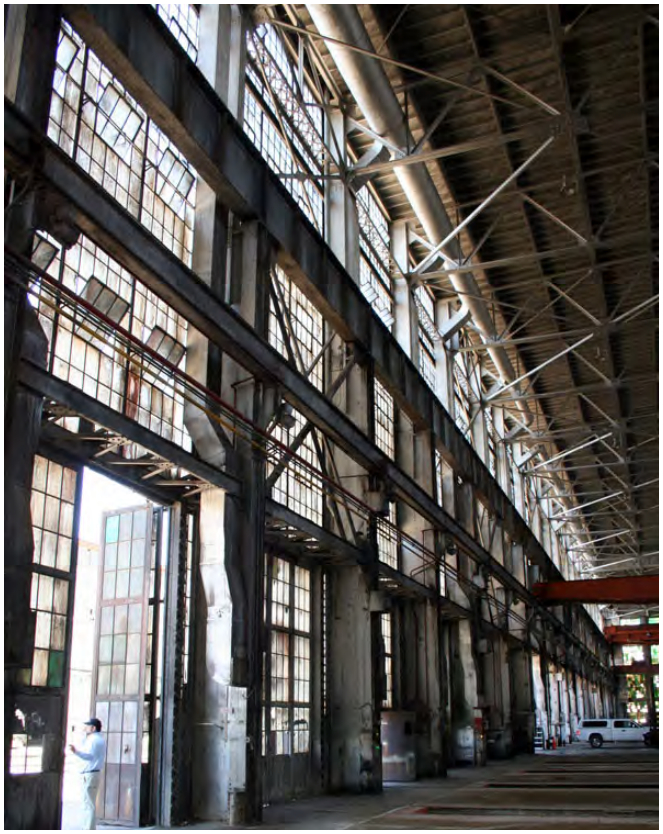
Machine Shop, View Towards East Elevation



Machine Shop, Heavy Machinery Bay



Machine Shop, Erecting Bay, 57' clear height to underside of truss structure. Floor troughs can be seen across slab.



North interior elevation showing large operarable doors.



Machine Shop, Erecting Bay - View from within floor trough.



HVAC Duct distribution from Central Plant.



North interior elevation.



North elevation, Operable doors.



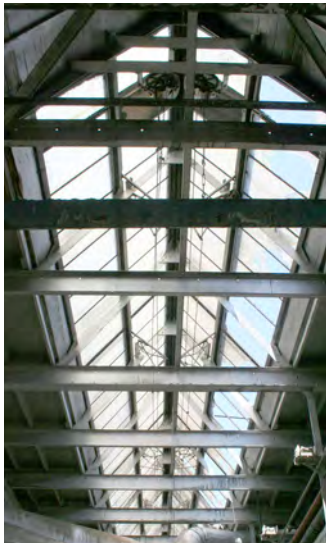
North elevation, Operable doors.



North elevation, Completely glazed façade.



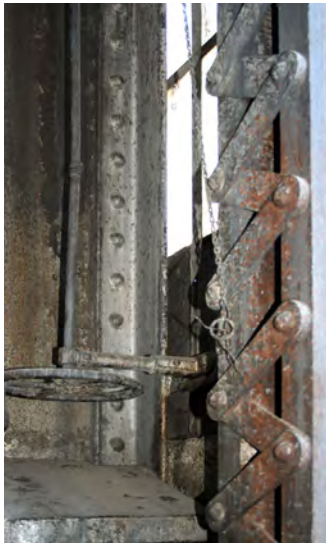
Machine Shop, North elevation, View from Transfer Table.



Skylight detail.



Gear/Pulley mechanism for skylight operation.



Crank mechanism for skylight operation.



Machine Shop, Pyramidal skylights over the Heavy and Light Machinery Bays.



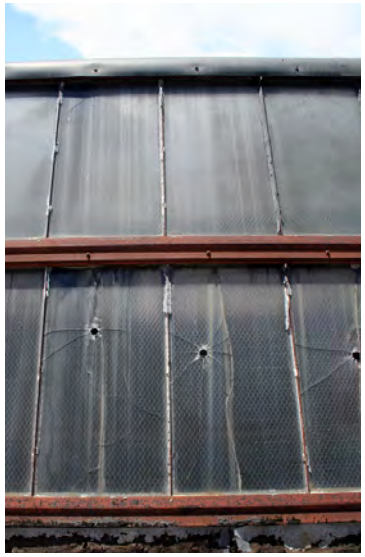
Longitudinal view from mezzanine catwalk.



Mezzanine elevator machine room (cab has been removed).



Transverse view from mezzanine.



Wired skylight glazing.



Machine Shop, View up toward mezzanine level.



Machine Shop, View from Roof looking North.



Pyramidal skylights.



Clerestory skylight at Eerecting Bay.



View of Erecting Bay from roof clerestory.



Built-up roofing, positive slope to South.



Machine Shop, Erecting Bay, Main 250 ton crane.



Flooring, 3" thick creosoted end-grain wood blocks.



West Elevation, Cast in Place Concrete Frame.



Erecting Bay columns supported on deep piles, dampened by springs.



Southeast corner, adjacent to active BNSF rail lines .



Erecting Bay, Floor trough.



BRIDGE CRANE

The Bridge Crane, also known as the Gantry Crane or the Crane Runway is a 15 ton crane that runs along the South elevation of the Machine Shop.



15 Ton Bridge Crane Connected to South Elevation of Machine Shop.



Bridge Crane, View from Machine Shop Roof, North towards South.



Bridge Crane, View from South West Corner.



Bridge Crane, View from East Elevation.



South bay, Crane Runway , Exterior loading crane.



Bridge Crane, View from West Elevation.



TURNTABLE

Plate girder steel turntable with head frame, motorized, set in 120' diameter cylindrical pit c.4 feet deep with poured concrete walls. The structure served a supporting function in a complex proposed for City Landmark designation in the City's Barelas Sector Development Plan. The turntable is an essential part of the complex. Currently used by BNSF Railway Co. The turntable is a key remnant of the shops complex, its historic integrity is high. It is driven by an internal combustion engine and drive gear.



Turntable, View from South.



Machine Shop, South Elevation, View across turntable.



Turntable, View from South.



Turntable, View from North side.



Turntable, View from Machine Shop Roof.



BOILER SHOP

Built in 1923. Contains 58,100sf. Divided into 2 bays. Entirely glazed south façade and partially glazed north façade. ¼" thick, single glazed panels, 14"x20", set in steel sashes. Partially glazed East and West façades set into reinforced concrete frames. The Lower 18' of the south façade contains continuous bi-fold steel frame doors, supported on rollers, that allowed the locomotives to move from Boiler Shop to the exterior Transfer Table. Mechanically operated natural ventilation, large crank/pulley devices controlled multiple operable sashes at once. Equipment looks to be in decent shape.

Rooftop skylights allowing no direct sun over Northern bay only. Single glazed, ribbed, wire glass. Skylights are also mechanically operable on one side only.

Mechanical rooms similar in concept to that of the Machine Shop although much smaller due to the fact that the Boiler Shop is 1/3 the area.

Flooring: 6" concrete slab, finished to a true surface, primed with a 1/8" bituminous coating, upon which 3" creosoted (distillate derived entirely from tars produced from the carbonization of bituminous coal) end-grain wood blocks were laid, with pitch interlaid between for waterproofing. Wood floor is in poor condition and creosote is carcinogenic.

Steel Frame Structure. Frame supports various cranes, still intact, not known if still operable.

Exposed wood plank ceiling is intact, although severe damage can be seen at the southern edge of the South Bay.

Roof is double sheathed with built-up roofing. Roof surface is in poor condition, and in some cases, completely void where the plank ceiling has been damaged.

Various auxiliary buildings are directly connected to the Boiler Shop, e.g. Tank Shop, Flue Shop, and the firing shed.

Electric Transformer, not original to the site, has been located at the Western edge of Heavy Equipment Bay and looks to be still active.



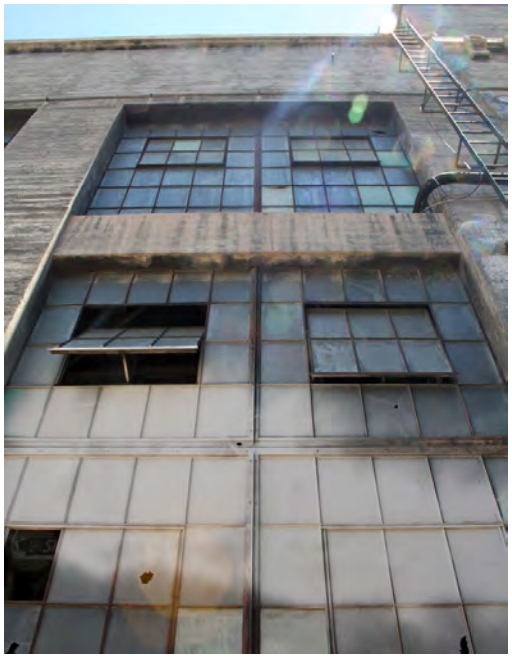
Northeast corner, Reinforced concrete with fully glazed perimeter wall.



North elevation, Exterior courtyard in foreground.



Firing Shed attached to West elevation, Transfer Table in foreground.



West elevation, Glazing inset to concrete frame.



Boiler Shop, South elevation, View from Transfer Table.



Boiler Shop, View from South Operable Doors



Boiler Shop, Erecting Bay, Fully Glazed southern elevation, Crane at rear. Floor troughs seen across floor.



Boiler Shop, Eercting Bay, Fully Glazed southern elevation with 18' tall operable doors.



Boiler Shop, Heavy Eqipment Bay, Pyramidal skylights



Boiler Shop, Heavy Equipment Bay, Pyramidal skylights, entrance to Flue Shop at immediate right.



Crane operator workstation, Heavy Equipment Bay.



Boiler Shop, Cranes in Erecting Bay.



Crane Controls.



Damaged flooring, 3" thick creosoted end-grain wood blocks





Stair access to mechanical rooms, at columns lines between the Erecting and Heavy Equipment Bays.



BLACKSMITH SHOP

Built in 1917, with the exception of the Storehouse, the Blacksmith Shop is the oldest remaining building on-site. Contains 24,879sf.

Predominantly glazed east and west façades set between vertical bands of masonry. The Blacksmith Shop is the only brick shop building on the site.

North and South façades are primarily masonry with much smaller openings, except for a large bi-fold central door at both façades. Interior of masonry walls have been painted white.

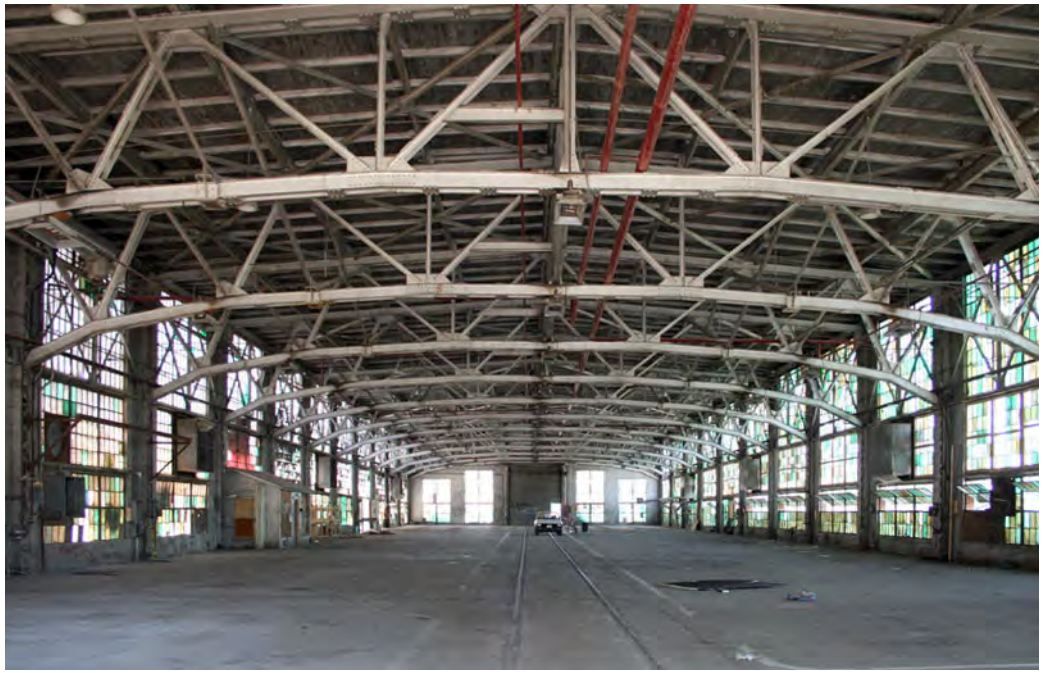
South elevation abuts Transfer Table, and east elevation abuts the railroad tracks. Very little provision for mechanically operated natural ventilation, fan units were integrated into the East and West façades in subsequent years.

No Rooftop skylights. No Mechanical rooms.
Flooring: Concrete slab on grade.
Steel Frame Structure. Columns are themselves built up trusses. No cranes evident in space. Truss shape is unique.

Exposed wood plank ceiling is intact, water damage is evident although ceiling is in relatively good condition.

Seismic retrofitting is evident at exterior masonry walls at attachments to steel support structure. Alternatively, steel plates may have resulted from some early form of post-tensioning.

Central rail lines remain through center of bay, recessed into the concrete floor.



Blacksmith Shop, Steel Trusses, Wood Plank Ceiling, Glazed East and West elevations.



Blacksmith Shop, South Elevation.



Exterior walkway between Blacksmith Shop (Left) and Flue Shop (Right), Machine Shop/Transfer Table shown in background.



Blacksmith Shop, Steel Truss at column surrounded by masonry wall.



South Elevation showing proximity to Boiler Shop to the West.



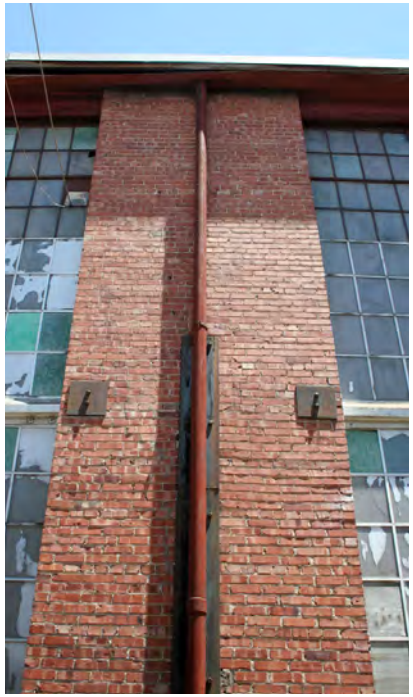
Interior View toward South Elevation Masonry wall.



North Elevation from adjacent parcel.



Fan equipment at Glazed Elevation.



West/East Elevation, Steel Plate upgrades.



Steel 'trussed' column.



FLUE SHOP

Built in 1920. Contains 9,464sf.

All concrete cast in place construction makes it unique to the complex with the exception of the Storehouse and some less significant miscellaneous site buildings.

Predominantly glazed east and west façades set between vertical bands of concrete.

North façade is primarily cast in place concrete with two large openings. South end of building opens directly to adjoining Boiler Shop. East elevation abuts Blacksmith Shop/exterior walkway and West elevation abuts exterior courtyard. Courtyard surface is hardscape but cracked with weeds. A few trees have grown up over the years.

Mechanically operated natural ventilation made possible by operable clerestory skylights.

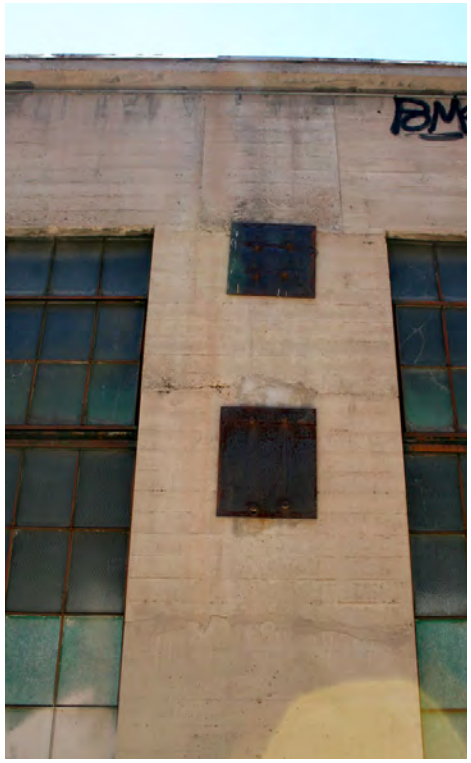
Unlike other buildings, lighting fixtures can be seen throughout, a small amount of mechanical ductword is visible, with registers supplying the shop. These are not original to the structure.

Ceiling, walls, beams, and slab are all cast in place concrete.

Seismic retrofitting is evident at exterior concrete walls at attachments to concrete beams. Alternatively, steel plates may have resulted from some early form of post-tensioning.



Flue Shop, View down center of Bay.





Steel plate upgrades.



Operable windows.



Flue Shop, Interior view of entrance, Boiler shop shown beyond.



Flue Shop, View up toward operable clerestory windows.



TANK SHOP

Also known as the Tender Repair Shop. Built in 1925. Contains 18,564sf.

Building is very similar in structure to the Heavy Equipment Bay (northern bay) of the Boiler Shop.

Entirely glazed east and west façades, although the Cab Paint Shop blocks the lower 15' of the western façade.
¼" thick, single glazed panels, 14"x20", set in steel sashes throughout. Partially glazed North façade with large openings to accommodate locomotive transfer set into reinforced concrete frames. South façade opens directly to the Boiler Shop.

Mechanically operated natural ventilation, large crank/pulley devices controlled multiple operable sashes at once. Equipment looks to be in decent shape.

Rooftop clerestory skylights allowing no direct sun run down center of bay. Clerestory shape is distinctive from 'A' frame skylights found in the Boiler and Machine Shops. Single glazed, ribbed, wire glass. Skylights are mechanically operable on both sides.

Mechanical ductwork is visible running through the space is likely to contain asbestos. Mechanical equipment is probably located on rooftop, although this would need to be confirmed. Flooring: Concrete slab on grade.

Steel Frame Structure. Frame supports one central 30 ton crane, manufactured by Shaw, still intact, not known if still operable. Full height, large braced frames exist in 3 locations on both East and West façades to deal with lateral loading in North/South direction. Exposed wood plank ceiling is intact, although severe damage can be seen at the western edge.



Northwest Corner, Cab Paint Shop in the foreground.



Tank Shop, North elevation.



Tank Shop, Interior view, central bay with Shaw 30-ton crane in foreground.



Interior view, West fully glazed elevation.



FIREHOUSE

Built in 1920. Contains 3,936sf on two floors. With the exception of the mezzanine in the Machine Shop, this is the only above grade floor in the complex. The Firehouse is the only building in the complex recognized as a City Landmark by the City of Albuquerque. Below find the City's description taken from their website:





Historic Photos, AT&SF Firehouse, Courtesy of City of Albuquerque.

"The Atchison, Topeka and Santa Fe Railway Fire Station was built in 1920 to serve the railroad's shop and roundhouse complex, located south of the passenger depot and Alvarado Hotel. It was one of the last buildings constructed by the railroad in Albuquerque, and reflected the company's interest in providing independent services and utilities for its operations.

This is Albuquerque's oldest remaining fire station. Its rustic architecture is rare in the city, conveying the railroad architect's romantic images of the Southwest. E.A. Harrison's design features a rough, sandstone exterior with an asymmetrical tower, crenellated parapet and sleeping porch. The tower itself is decorated with tiled overhangs, protruding beams, a stone insignia and ornamental globes. The building's sandstone, quarried at Laguna Pueblo, was taken from a demolished 1881 roundhouse built by the Atlantic and Pacific Railroad, a forerunner to the AT&SF. The protection of all of these features is included under its Landmark status.

The fire station was used as offices for several years following the demolition of the roundhouse. It is currently vacant but still stands as a reminder of the important role that the AT&SF industrial complex played in Albuquerque's economy through most of the 20th century."



Firehouse, West Elevation.



Firehouse, South Elevation - Detail.



Firehouse, South Elevation.



Southwest Corner showing proximty to Tank Shop in background.



East Elevation.



STOREHOUSE WITH PLATFORM

Built in 1915. 1-story, poured concrete building of 50 feet by 417 feet plan dimensions. Storehouse sits on a concrete platform with 10- foot wide runways/ loading docks on east and west sides. Platform extends south of building and beyond. Building held stores for AT&SF Railway Company administration and management- forms, tools, toilet paper- for the entire line. Storehouse is ancillary to the shops operation but served other AT&SF facilities near and far during the 1914-1953 period. Its historic integrity is high. An oil cellar is partly exposed on the platform just south of the building. Storehouse's southern bay is a space unto itself and accessible only via two exterior doors.



Aerial view of Storehouse from roof of Machine Shop.



Storehouse, View from North.



Storehouse, View from roof of Machine Shop.



Storehouse, View from Inside.



TRANSFER TABLE

Concrete-lined pit with east-west tracks and electrically powered gear-driven table with operators' cab and north/south track in a steel-plate deck. Also includes a nonpowered table with north-south track. Transfer Table was an essential part of locomotive shops operation and the complex. Electric motor housing by cab, electrical service frames Transfer Tables are rare, far more so than railway turntables. The Transfer Table made this shops complex work as a cross-axial design.



Transfer Table, West Elevation.



Transfer Table, View from West.



Transfer Table, View from East side.



Transfer Table, View from southeast corner to BlackSmith Shop and Boiler Shop.



Transfer Table, View from the southeast corner to BlackSmith Shop and Boiler Shop.



Transfer Table, View from the East Side.

APPENDIX D: INFRASTRUCTURE REPORT

The infrastructure report deals broadly with systems designed to convey utilities to and from the Rail Yards site. Systems are analyzed to determine existing capacity and against this baseline, the development proforma of the Concept Plan is evaluated and recommendations for its accommodation are provided.

Note that the information contained in this section is preliminary in nature and intended to provide a baseline analysis and rough order of magnitude summary of future infrastructure requirements only. Specific infrastructural requirements will be detailed prior to Site Plan for Building Permit approvals.

D.1 Infrastructure - Executive Summary:

The redevelopment of the Albuquerque Rail Yards located at 2nd Street SW and Santa Fe Avenue SW has been investigated. Infrastructure needed to support the redevelopment concepts has been analyzed. The analysis will review the existing adjacent infrastructure and capacities, to meet the full proposed build-out of the redevelopment, estimated at 30 work force residences, and 801,592 square feet of "heavy commercial" land use. This report will show existing capacities available for both wet and dry utilities; as well as demands and concept improvements for future redevelopment.

At this time, analysis of the infrastructure to support phasing of the project in order to minimize working capital and maintenance requirements has not yet been undertaken. Rather the current examination is to show the amount of infrastructure required to support the full build-out of the project only.

D.1.1 Water Distribution System

Significant improvements must be made to the potable water distribution system between Hazeldine Avenue and Cromwell Avenue along 2nd Street SW to satisfy fire flow demands for the future development. The Rail Yard appeared to have had its own private water line, consisting of both 6-inch and 8-inch pipes. The recommendation is to replace the existing old on-site system with the a proposed public distribution system that will consist of 8-inch pipes, with the appropriate placed fire hydrants, valves, service meters, and a large cistern that will be used to augment fire flows. Each building will be sized for its own independent water meter; and will also be analyzed for the number of fire hydrants that are required for its building type to meet fire code requirements. Requests to the Albuquerque Bernalillo County Water Utility Authority (ABCWUA) have been made to prepare a fire flow test for the existing distribution system adjacent to the Rail Yard. The results of this analysis have not been received so for the purposes of the master plan, the assumption is that a maximum fire demand for the existing infrastructure of 1,500 gallons per minute (GPM), is achievable. The existing public line in 2nd Street SW will be connected in several locations to the new proposed line within the development.

All new hydrants will be located by the City Fire Marshal's office, and subsequent utility plans will need to be prepared and approved, by the ABCWUA. Public easements will be required for the proposed on-site distribution system.

The site will require an on-site cistern with an additional water supply volume of 46,300 cf; with a peak potable demand of 520 gpm and a maximum fire demand of 4000 gpm; for a two hour duration. Wilson & Company has addressed these requirements in the body of this master plan. The 46,300 cubic foot cistern with booster pump will be required to support the existing infrastructure to provide fire flow for the project. The cistern and the booster pump may need to be installed during the first phase of the project in case the existing system pressure in 2nd Street SW drops below 20 psi, to address an emergency situation.

The project is also planned to have open space areas, which will be irrigated; with low flow or special irrigation to prevent the unnecessary use of potable water.

D.1.2 Wastewater Collection

Wastewater generated from the proposed developed site will be collected by a series of internal private systems. The proposed system will connect to the existing 8-inch line in 2nd Street SW at 2 locations: near the crossing streets of Atlantic Avenue SW; and Santa Fe Avenue SW. The existing 8-inch line has a capacity of 0.85 cfs. The existing 8-inch line is required to be upsized to a 12-inch line as part of this project. A third connection will be made to the proposed 12-inch line in 2nd Street SW south of Pacific Avenue in order to handle the additional flows. The proposed 12-inch line has a capacity of 2.52 cfs. The line at the intersection of Cromwell Avenue SW and 2nd Street SW is a 12-inch line. The existing capacity of the 12-inch line is 2.52 cfs. Each proposed 8-inch sanitary sewer line has capacity of 0.85 cfs. The technical discussion in the body of this report shows the peak demand at each of the proposed sanitary connections within the development.

The existing on-site sanitary system will be completely replaced for the purpose of this report.

D.1.3 Stormwater Management System

Stormwater management is a critical element for the proposed development. Drainage patterns will remain similar to those of the existing condition; however, no detention is currently provided for the mostly impervious Rail Yard. Through an existing agreement with the City of Albuquerque, the proposed project will be allowed to release at a rate of 2.75 cfs per acre of development. The existing drainage patterns, with very flat slopes running from east to west, show 3 natural drainage basins, which will be similar for final grading of the proposed site. Each basin (Basin A-1 located at the northern end of the development, Basin A-2 located in the middle of the development and Basin A-3, located in the southern portion of the development) will provide its own detention areas, whether by underground cistern, porous landscape techniques, bio-swales, rain gardens, or other general low impact improvements accepted for high density urban environments. The onsite system for collection and detention will be a private system connecting to the public gravity system located in 2nd Street SW. It is anticipated that each of the basins will require:

- Basin A-1; total volume of storage required 17,978 cf, with max discharge of 20.1 cfs

- Basin A-2; total volume of storage required 20,309 cf, with max discharge of 22.6 cfs

- Basin A-3; total volume of storage required 28,807 cf, with max discharge of 32.2 cfs

For the purposes of this report, Wilson & Company proposes to incorporate an extensive array of best management practices that respect the flat topography; which reflect the stormwater criteria and regulations. We propose a gravity system consisting of swales, ditches, small diameter piping, and shallow ponds, while attenuating peak discharges, which also adhere to a sustainable design practice for open space and landscape areas.

D.1.4 Dry Utilities

- Gas availability; Contact was made with the New Mexico Gas Company. Based on the general concepts of the site plan, it was determined that there will be no problem servicing the anticipated load.

- Century Link availability; Contact was made with Century Link. Its main copper and fiber optic facilities located at 4th Street SW, between Coal and Bridge can be extended to serve the Rail Yard development.

- Comcast availability; Contact was also made with Comcast; Capacity is available to provide service to the proposed Rail Yard site.

- PNM availability; An existing substation is located at the northern

end of the project across 2nd Street SW that has been estimated to provide 1.5 megawatts. The assumption for the development is that the electricity demand will exceed 8 megawatts; requiring the existing substation to be expanded, along with the construction of primary distribution lines to the proposed development. The project may also require a new 115kV transmission line to be extended to connect to the expanded substation. Additional analysis through PNM will be required to develop a final conceptual plan for this development.

D.2 Water Distribution

This section of the report is intended to address the future water distribution system for the Albuquerque Rail Yard. The proposed public water distribution system within the site is intended to serve a dual function of domestic service, as well was fire protection flows. Based on the proposed Parcel Map, Floor Area Ratios (FAR), and Projected Usages prescribed within the Master Development Plan, the demands on the water service system have been estimated as outlined within this section of the report.

D.2.1 Existing Infrastructure

According to municipal maps, a private water distribution system within the Rail Yard did exist at one time. It has since been abandoned and its size and condition is unknown at this time. Therefore, for the purposes of this section of the report, it has been deemed infeasible to re-use the existing on-site system. Instead, this section will schematically layout a new system designed to specifically meet the requirements of the proposed development.

The existing public potable water distribution system to the west of the site within 2nd Street SW consists of a 6" main. An 8" main also exists within Commercial Street SE to the east. However, due to the feasibility and potential expense of crossing the existing railroad tracks to reach the main in Commercial Street the recommendation of this document is that water services be obtained from 2nd Street SW.

*Note: If additional resources can be identified through working with the Albuquerque Bernalillo County Water Utility Authority this could be revisited during the initial designs.

D.2.2 Proposed Development

The proposed concept for development will consist of numerous buildings, both existing buildings to be rehabilitated and new construction. The site is proposed to be divided into ten parcels as part of the master planning process. Each of these parcels was assigned a floor area ratio (FAR) and proposed use. The FAR and parcel area then dictated the potential build-out for development within each parcel. It is these fully built-out square footages that were used in the calculations of the domestic and fire demands.

D.2.3 Domestic Demand Calculation

The Volume II – Design Criteria, Chapter 25: Waste System Design Criteria of the Albuquerque Development Process Manual does not dictate a method for estimating design flows. Therefore, the domestic demand has been calculated by use of the sanitary sewer flows based on the potential build-out outlined above. The sanitary sewer flows were modified to approximate domestic demand by assuming a 20% water consumption rate. Domestic demands for the proposed development are as follows:

Parcel ID	Proposed Use (Per Master Plan)	Domestic Demand (MGD)
1	Cultural Facilities: Museum, Performing Arts	0.174
2	Work-Force Housing	0.122
3	Cultural Facilities: Museum, Live Work	0.029
4	Open Space; Accessory Retail	N/A
5	Business/Professional Uses: Office, Light Manufacturing, Training/Education, R&D, Media. Accessory Cultural Uses.	0.157
6	Open Space	N/A
7	Business/Professional Uses: Office, Light Manufacturing, Training/Education, R&D, Media	0.040
8	Business/Professional Uses: Office, Light Manufacturing, Training/Education, R&D, Media	0.104
9	Open Space/Commercial: Retail, Restaurant, Service	0.023
10	Business/Professional Uses: Office, Light Manufacturing, Training/Education, R&D, Media	0.100

D.2.4 Fire Flow Demand Calculation

Fire flows for the proposed development were approximated using the International Fire Code Table B105.1. Building Type IIB was assumed for both existing structures to be rehabilitated and proposed new structures. Type IIB was selected due to its non-combustible, non-rated classification. The flow rates from the table were then reduced by 50% due to the assumption that all buildings will be sprinkled as allowed by the Fire Code. The required flow durations were also obtained based on the projected demands. See the table for a summary:

Parcel ID	Buildable Area (SF)	Construction Type*	Fire Flow** (GPM)	50% Reduction for Sprinklers (GPM)	Flow Duration As Required by Code (Hours)
1	240,567	IIB	8000	4000	4
2	77,264	IIB	6000	3000	3
3	31,791	IIB	4750	2375	2
4	N/A	N/A	N/A	N/A	4
5	214,121	IIB	8000	4000	4
6	N/A	N/A	N/A	N/A	4
7	45,447	IIB	4750	2375	2
8	134,984	IIB	7750	3875	3
9	24,554	IIB	4750	2375	2
10	128,304	IIB	7500	3750	3

D.2.5 Proposed System Layout and Design

The proposed water distribution system on site was laid out with two main objectives. The first was to provide infrastructure to fully service various connection points throughout the parcel as well as place new fire hydrants to meet the spacing requirements. The second objective was to provide an independently looped system within the boundaries of the site. By doing so it allows fire demands for the development to be met by a single cistern and pump system, which will be installed during the initial phasing of the project.

At the time this document was prepared, no existing flow data was available for the municipal water distribution system adjacent to the site. It has been assumed that the 6" water main in 2nd Street SW will not have an ability to sufficiently supply fire flows for the proposed development. Therefore, it is proposed a booster pump and cistern system be centrally located within the site's water distribution network to meet the demands estimated in the table above. The proposed cistern size of 46,300 cf and pump size of 2,500 GPM is intended to supplement a projected draw of 1,500 GPM from the city infrastructure to meet the maximum flow of 4,000 GPM for a maximum duration of 2 hours.

It is important to note that the Code requires flow durations in excess of that which the pump system can supply. This non-compliance with Code has been disregarded due to the nature of the flows that have been calculated. The flows are calculated using bulk buildable square footages for different parcels of the site that in many cases include multiple structures. During the formal design of the development more accurate, building specific calculations will be performed that will result in lower flow values and durations. The conceptual fire system is, therefore, conservative and appropriate for planning purposed as the project moves forward. Also use of fire rated construction in larger buildings can be used to reduce demand.

Attachments:

Domestic Demand Calculations
Fire Demand Calculations
Existing Water Infrastructure Map
Conceptual Water Infrastructure Map

Albuquerque Rail Yard - Domestic Demand Estimation

Parcel ID	Proposed Use (Per Masterplan)	Parcel Area (SF)	Proposed FAR	Buildable Area (SF)	Proposed Use (For Utility Sizing)*	Design Flow Per Sanitary* (MGD)	Useage Factor	Domestic Demand (MGD)
1	Cultural Facilities: Museum, Performing Arts	370,103	0.65	240,567	Heavy Commercial	0.145	1.2	0.174
2	Work-Force Housing	77,264	1.00	77,264	80 DU (~1,000SF/DU)	0.101	1.2	0.122
3	Cultural Facilities: Museum, Live Work	63,582	0.50	31,791	Heavy Commercial	0.024	1.2	0.029
4	Open Space; Accessory Retail	40,120	N/A	N/A	N/A	N/A	N/A	N/A
5	Business/Professional Uses: Office, Light Manufacturing, Training/Education, R&D, Media. Accessory Cultural Uses.	142,747	1.50	214,121	Heavy Commercial	0.131	1.2	0.157
6	Open Space	79,893	N/A	N/A	N/A	N/A	N/A	N/A
7	Business/Professional Uses: Office, Light Manufacturing, Training/Education, R&D, Media.	30,298	1.50	45,447	Heavy Commercial	0.033	1.2	0.040
8	Business/Professional Uses: Office, Light Manufacturing,	89,989	1.50	134,984	Heavy Commercial	0.087	1.2	0.104
9	Open Space/Commercial: Retail, Restaurant, Service.	98,216	0.25	24,554	Heavy Commercial	0.019	1.2	0.023
10	Business/Professional Uses: Office, Light Manufacturing, Training/Education, R&D, Media.	197,390	0.65	128,304	Heavy Commercial	0.083	1.2	0.100

* - Per Albuquerque Development Process Manual - Chapter 24 - Sanitary Sewer Design Criteria

Albuquerque Rail Yard - Fire Demand Estimation

Parcel ID	Proposed Use (Per Masterplan)	Parcel Area (SF)	Proposed FAR	Buildable Area (SF)	Construction Type*	Fire Flow** (GPM)	50% Reduction for Sprinklers (GPM)	Flow Duration (Hours)
1	Cultural Facilities: Museum, Performing Arts	370,103	0.65	240,567	IIB	8000	4000	4
2	Work-Force Housing	77,264	1.00	77,264	IIB	6000	3000	3
3	Cultural Facilities: Museum, Live Work	63,582	0.50	31,791	IIB	4750	2375	2
4	Open Space; Accessory Retail	40,120	N/A	N/A	N/A	N/A	N/A	4
5	Business/Professional Uses: Office, Light Manufacturing, Training/Education, R&D, Media. Accessory Cultural Uses	142,747	1.50	214,121	IIB	8000	4000	4
6	Open Space	79,893	N/A	N/A	N/A	N/A	N/A	4
7	Business/Professional Uses: Office, Light Manufacturing, Training/Education, R&D, Media	30,298	1.50	45,447	IIB	4750	2375	2
8	Business/Professional Uses: Office, Light Manufacturing, Training/Education, R&D, Media	89,989	1.50	134,984	IIB	7750	3875	3
9	Open Space/Commercial: Retail, Restaurant, Service	98,216	0.25	24,554	IIB	4750	2375	2
10	Business/Professional Uses: Office, Light Manufacturing, Training/Education, R&D, Media.	197,390	0.65	128,304	IIB	7500	3750	3

* - Construction Type IIB assumed for all buildings: non-combustable, non-rated

** - Fire Flows per IFC Table B105.1

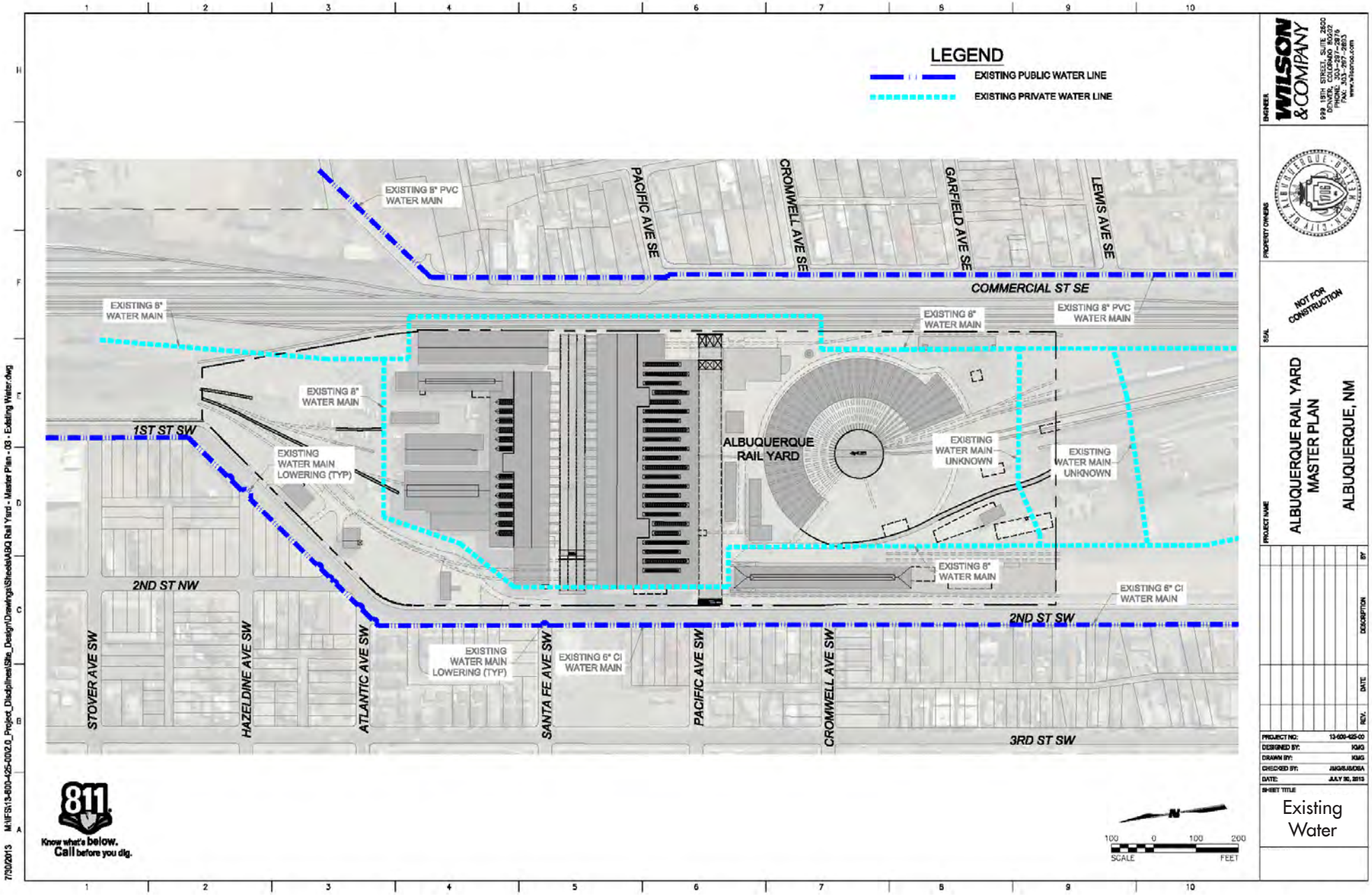


Figure 21a: Existing Water

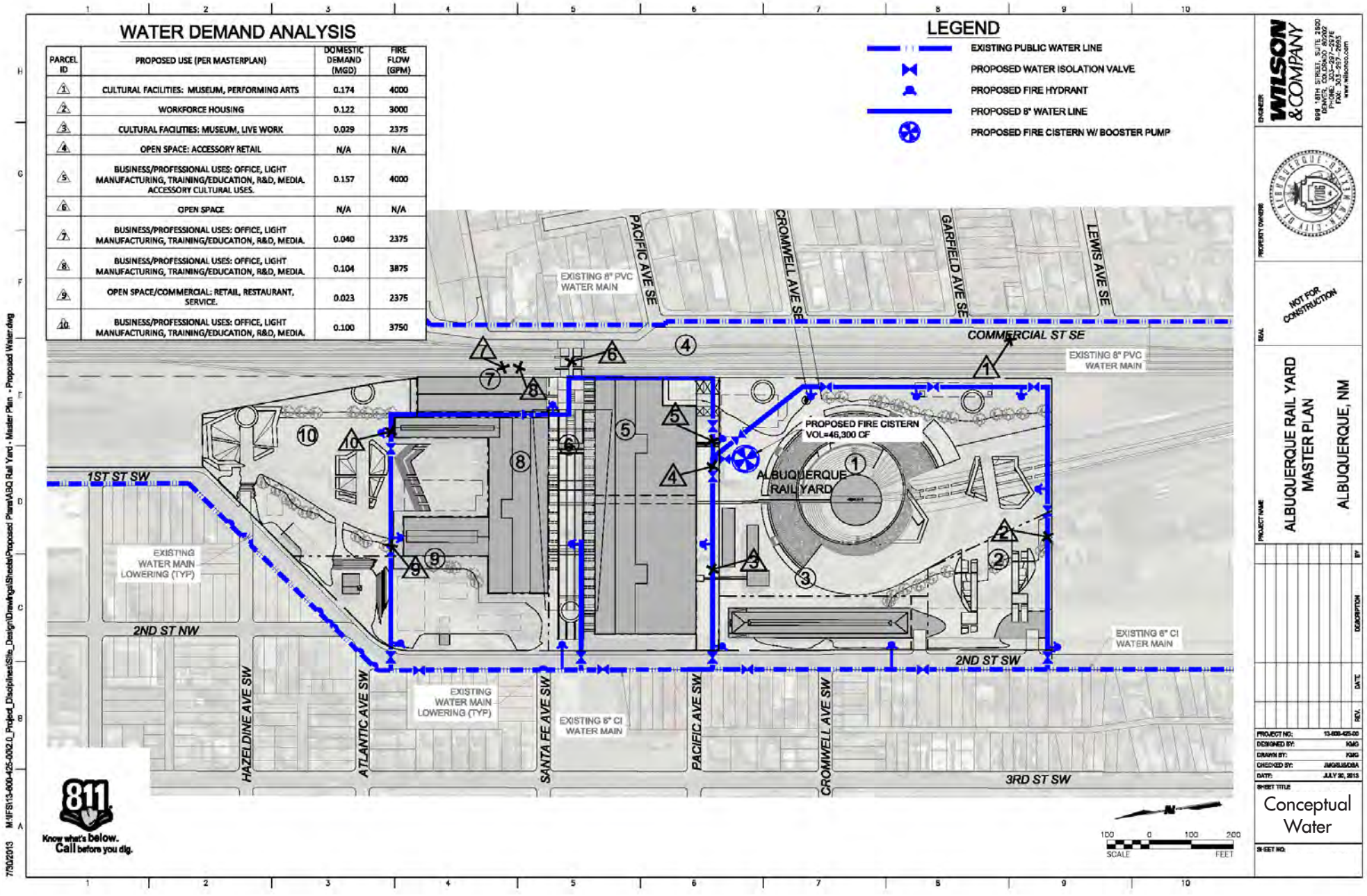


Figure 21b: Conceptual **Water**

D.3 Wastewater Collection

This section of the report is intended to address the proposed sanitary flows that will be contributed from the Albuquerque Rail Yard. The development concepts will be comprised of a minimum 30 dwelling units and 5 analysis points of mixed commercial use that has a total parcel area of 1,189,602 square feet, of which 801,592 square feet is the allowable buildable "heavy commercial" land use area. The analysis points are laid out as such:

- Analysis point 1 consist of Parcels 9 and 10
- Analysis point 2 consist of Parcels 5, 7, and 8,
- Analysis point 3 consist of Parcels 1, 2, and 3,
- Analysis point 4 is the combination of analysis points 1 and 2, and
- Analysis point is the combination of analysis point 1 and 4

**Note: See attached Figure 22b Conceptual Wastewater for analyses point locations and Parcel ID.

The following calculations have been prepared to meet the requirements of Volume II – Design Criteria, Chapter 24: Sanitary Sewer Design Criteria of the Albuquerque Development Process Manual.

- Analysis Point 1 Proposed Flow
  Avg Flow = (5,968 GPD/AC)(6.79 AC)(10-6) = 0.040 MGD
  Peak Flow = 2.5(0.040)0.8875 = 0.145 MGD
  Design Flow = (1.2)(0.145 MGD)(1.547) = 0.270 cfs
  Total Design Flow for Analysis Point 1
  Total Design Flow = 0.27 cfs

- Analysis Point 2 Proposed Flow
  Avg Flow = (5,968 GPD/AC)(6.04 AC)(10-6) = 0.036 MGD

  Peak Flow = 2.5(0.036)0.8875 = 0.131 MGD
  Design Flow = (1.2)(0.145 MGD)(1.547) = 0.243 cfs
  Total Design Flow for Analysis Point 2
  Total Design Flow = 0.24 cfs

- Analysis Point 3 Proposed Flow
  Commercial Portion
  Avg Flow = (5,968 GPD/AC)(9.96 AC)(10-6) = 0.059 MGD
  Peak Flow = 2.5(0.059)0.8875 = 0.204 MGD
  Design Flow = (1.2)(0.204 MGD)(1.547) = 0.379 cfs

  Dwelling Portion
  Avg Flow = (80 DU)(2.5 People/DU)(110 GPD/Person)(10-6) = 0.022 MGD
  Peak Flow = 2.5(0.022)0.8875 = 0.084 MGD
  Design Flow = (1.2)(0.084 MGD)(1.547) = 0.157 cfs
  Total Design Flow for Analysis Point 3
  Total Design Flow = 0.157 cfs +0.379 cfs = 0.54 cfs

The above mentioned results are the quantities that were obtained using the heavy commercial sanitary average flows provided by Volume II – Design Criteria, Chapter 24: Sanitary Sewer Design Criteria of the Albuquerque Development Process Manual. The heavy commercial sanitary flows were chosen to be conservative when projecting the additional flows and were compared the City and Country of Denver Department of Public Works Sanitary Sewer Design Technical Criteria Manual (See attached CCD Table 2.04.3 – Commercial/Industrial Flow Factors), in order to allow for reasonable assumptions to be made. No data on existing sanitary sewer conditions have been provided prior to this report, such as slope and sanitary flows.

Analyses were performed using FlowMaster software to determine the allowable capacities of the existing sanitary sewer system. The analysis revealed the existing 8" Vitrified Clay Pipe, VCP, running along the west side of the future development had an allowable capacity of 0.85 cfs, assuming the current system runs at a 0.5% slope. Thus

the 0.27 cfs calculated at analysis point 1 (See attached Proposed Sanitary Site Layout for location) could flow into the existing 8" VCP with a remaining capacity of 0.58 cfs (68.2%). Analysis point 4, which is a second proposed connection to the above mentioned existing 8" VCP pipe in 2nd Street SW, will be the combination of the flows from analysis points 1 and 2, which have a total projected flow of 0.51 cfs. The additional 0.51 cfs could be added to the existing 8" VCP sanitary with a remaining 0.34 cfs (40.0%). These analyses were done separate due to the lack of data provided on current conditions.

South of analysis point 5, the report proposes the replacement of the 8" VCP with a 12" PVC sanitary pipe, due to the additional flow that will be contributed from analysis point 5, which is a combination of analysis point 1, 2, and 3. The project flow at this portion of the sanitary sewer system will be 1.05 cfs. An analysis was done using FlowMaster to determine the allowable capacity in the proposed 12" PVC pipe. The results of the FlowMaster analysis it was determined the allowable flow capacity of the proposed 12" PVC pipe was 2.52 cfs, therefore a remaining capacity of 1.47 cfs (58.3%) would be allowable for future developments.

With the above mentioned results, it is assumed that with the additional flows and the proposed change to the portion of the existing 8" VCP to a 12" PVC sanitary pipe, between Pacific Avenue SW and Cromwell Avenue SW, that there will be adequate capacities to handle proposed and existing flows.

Attachments:
- Existing Wastewater
- Conceptual Wasterwater
- Spread Sheet of Analysis Points with Calculated Flows
- Section 2 of Chapter 24: Sanitary Sewer Design Criteria
- CCD Table 2.04.3 – Commercial/Industrial Flow Factors
- FlowMaster Worksheet for Existing 8" VCP @ Assumed 0.5% (Allowable Capacity)
- FlowMaster Worksheet for Existing 12" PVC @ Assumed 0.5% (Allowable Capacity)

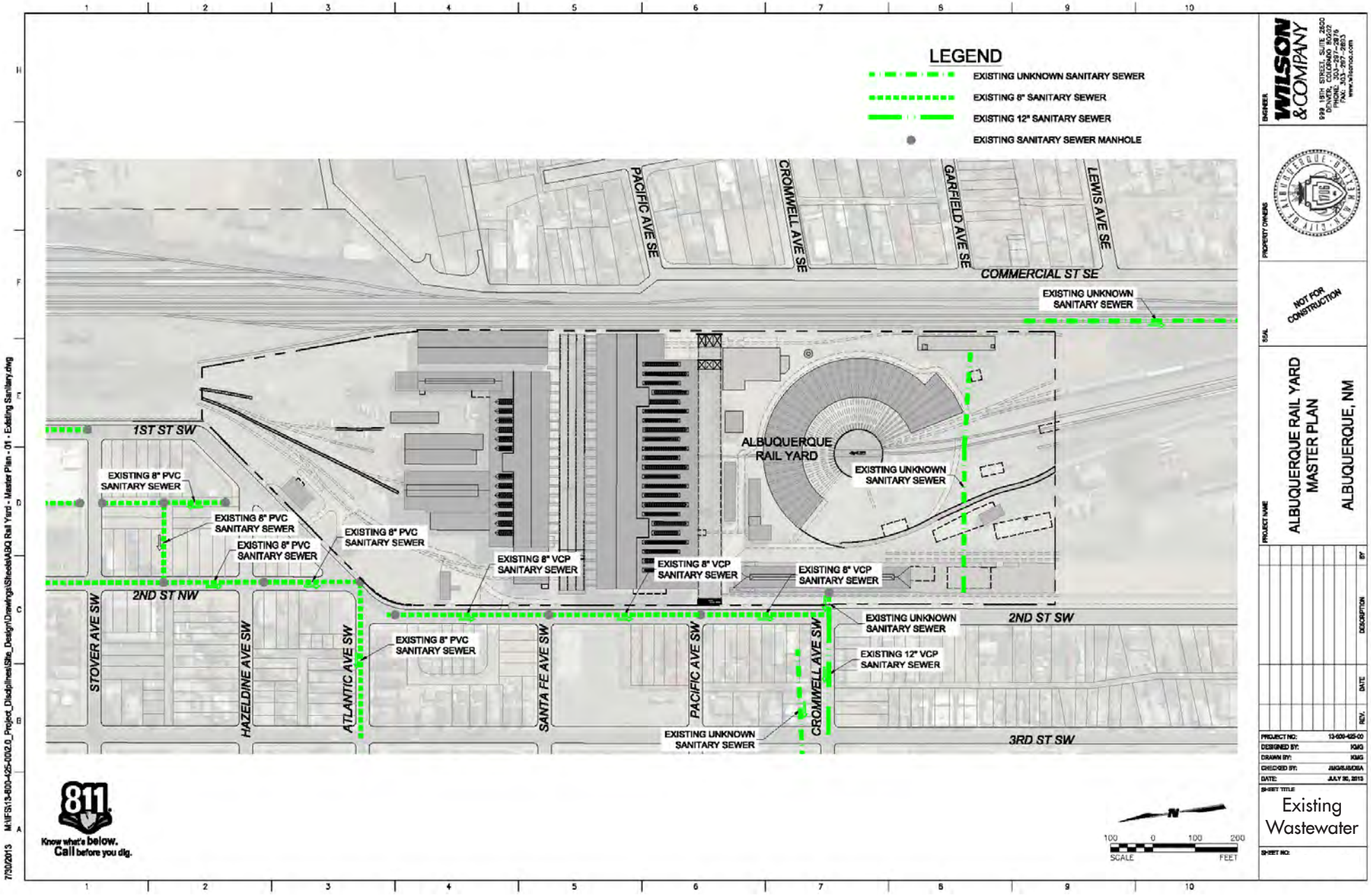


Figure 22a: Existing Wastewater

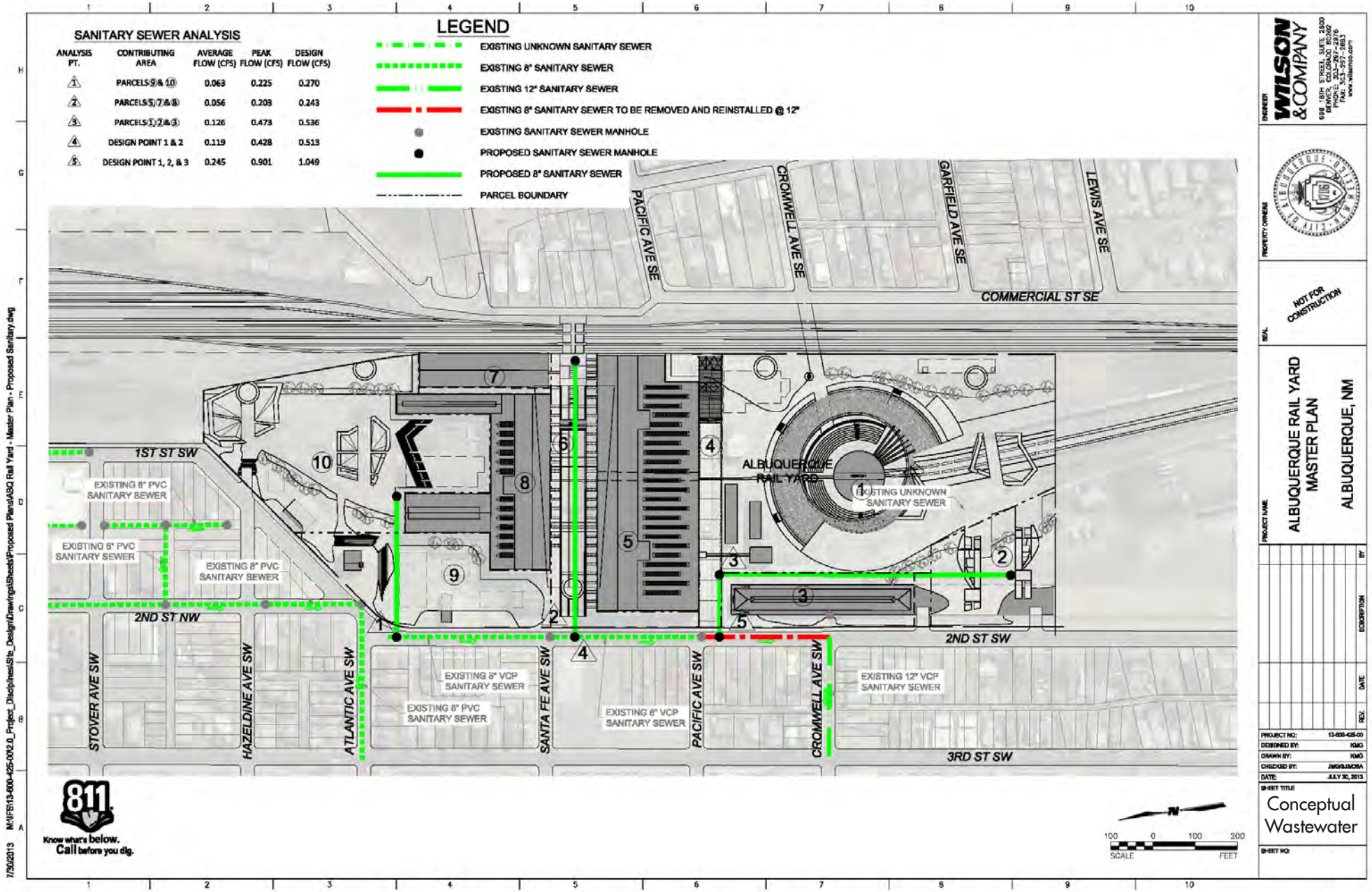


Figure 22b: Conceptual **Wastewater**

Analysis Point 3

Parcel ID	Proposed Use (Per Masterplan)	Parcel Area	Proposed FAR	Buildable Area	Proposed Use (For Utility Sizing)*
1	Cultrual Facilities: Museum, Performing Arts	370,103	0.65	240,567	Heavy Commercial
2	Work-Force Housing	77,264	1.00	77,264	80 DU (~1,000SF/DU)
3	Cultural Facilities: Museum, Live Work	63,582	0.50	31,791	Heavy Commercial

Total area (minus WFH Parcel 2 & Open Space Parcel 4) (SF)	433,685	
	MGD	CFS
Ave Flow	0.059	0.092
Peak Flow	0.204	0.316
Design Flow	0.245	0.379
Work-Force Housing	Population	
2.5 persons/DU	200	
	MGD	CFS
Ave Flow	0.022	0.034
Peak Flow	0.084	0.131
Design Flow	0.101	0.157
	MGD	CFS
Total Design Flow for Analysis Point 3	0.346	0.536

Analysis Point 2

Parcel ID	Proposed Use (Per Masterplan)	Parcel Area	Proposed FAR	Buildable Area	Proposed Use (For Utility Sizing)*
5	Business/Professional Uses: Office, Light Manufacturing, Training/Education, R&D, Media. Accessory Cultural Uses.	142,747	1.50	214,121	Heavy Commercial
7	Business/Professional Uses: Office, Light Manufacturing, Training/Education, R&D, Media.	30,298	1.50	45,447	Heavy Commercial
8	Business/Professional Uses: Office, Light Manufacturing, Training/Education, R&D, Media.	89,989	1.50	134,984	Heavy Commercial

Total area (minus open space Parcel 6) (SF)	263,034	
	MGD	CFS
Ave Flow	0.036	0.056
Peak Flow	0.131	0.203
Design Flow	0.157	0.243
	MGD	CFS
Total Design Flow for Analysis Point 2	0.157	0.243

Analysis Point 1

Parcel ID	Proposed Use (Per Masterplan)	Parcel Area	Proposed FAR	Buildable Area	Proposed Use (For Utility Sizing)*
9	Open Space/Commercial: Retail, Restaurant, Service.	98,216	0.25	24,554	Heavy Commercial
10	Business/Professional Uses: Office, Light Manufacturing, Training/Education, R&D, Media.	197,390	0.65	128,304	Heavy Commercial

Total area (minus open space Parcel 6) (SF)	295,606	
	MGD	CFS
Ave Flow	0.040	0.063
Peak Flow	0.145	0.225
Design Flow	0.174	0.270
	MGD	CFS
Total Design Flow for Analysis Point 1	0.174	0.270
	MGD	**CFS**
Total additional flow	**0.678**	**1.048**

No water or sanitary sewer service accounts shall be sold to any development project prior to issuance of a Water and Sanitary Sewer Availability Statement for that specific project. No property may develop or take service in such a manner that leaves adjacent unserviced properties without means to obtain service. In accordance with the Water and Sewer Expansion Policies, line extensions are required to cover all frontage of the property requesting service unless all adjacent properties have other means of being served.

Section 2. ENGINEERING DESIGN CRITERIA

Unless modified for a specific project, specifications for pipe and other construction materials and specifications for construction will be as required in the current City of Albuquerque Standard Specifications for Public Works Construction and Standard Details.

A. Design Capacity Criteria Section, Development and Development Service

1. Off-site flows will be typically determined by the Planning Department/Utility Development.

2. In areas with a mix of residential, commercial, industrial, etc., roughly representative of the city as a whole, the population of the contributing area is determined and the design flows are calculated as follows:

Average Flow = 110 X Population/10^6, in MGD
Peak Flow = 2.5 X (Avg.) $^{.8875}$, in MGD
Design Flow = 1.2 X Peak, in MGD
(for cfs, multiply MGD by 1.547)

3. Population loadings are assumed to be:

2.5 persons per DU for apartments, townhouses and mobile homes

3.0 persons per DU for R-1 single-family homes

Where DU = Dwelling Unit

4. In primarily non-residential areas, design flows are determined by other methods as may be appropriate with the approval of the Planning Department/Utility Development, Development & Building Services Center. Following is a summary of non-residential sewer use categories and estimated demand currently used by City staff in the Albuquerque Sewer Analysis Model (ASAM) of the City's major sewer lines:

NOTE: The following land use categories and associated sewer use loading values are established for use with development within the City of Albuquerque Wastewater collection basin. The Land Use Categories relate to standard "Sewer Use Unit Hydrographs" within the City's computer model of the sewer system, Albuquerque Sewer Analysis Model (ASAM). Alternative loadings may be considered or required when justified for a specific development. Impact fees analysis may reflect variations in flows.

LAND USE CATEGORY	AVERAGE FLOW (gpd / Acre)	PEAK FLOW (gpd / Acre)
Light Commercial	1,230	1,621
Heavy Commercial	5,968	7,600
Light Institutional	226	310
Heavy Institutional	1,788	2,448
Light Industrial	447	745
Medium Industrial	1,680	1,982
Heavy Industrial	9,266	10,300

Section 4 of this chapter contains a detailed listing of Land Use Codes and classifications for nearly all possible developed uses, as they are applied in ASAM. Contact Planning Department /Utility Development for assistance in applying rates and determining applicable loadings.

5. Design is for full pipe flow at the design flow.

6. Manning's Formula is to be used for determination of pipe flow velocities and capacities using a value for Manning's "n" = 0.013.

a. Peak velocity = Velocity at peak flow conditions

b. Average velocity = Velocity at average flow conditions

B. Manhole Criteria

1. Manholes must generally be located on the centerline of street right-of-way or of street width if the street is not concentric with the right-of-way. Manholes for straight lines in curved streets may be located as much as 5' off from centerline of street or right-of-way; however, required clearances from other utilities must be maintained. The offset of such manholes is to be dimensioned from center of manhole barrel to the centerline of the street or right-of-way. In narrow, curving, residential streets, greater than 5' offset may be appropriate to maintain separation from other utilities. Avoid locating manholes in the "wheel path" on arterial and collector roadways, and keep them out of "Parking" lanes and spaces. Manhole locations that conflict with centerline monumentation required for subdivisions, should be shifted, when practical, to eliminate the conflict. Manholes will not be allowed outside of public right-of-way within residential areas except in private streets or within multifamily housing with public easements. All manholes must be accessible by sewer maintenance truck. Manhole locations in residential rear or side yards are not acceptable.

2. Standard minimum manhole depth is 6.0', measured from rim to invert. Manhole depths greater than 20 feet shall be avoided.

3. The required inside diameter for a manhole is determined as follows:

a. Minimum inside diameter is 4.0'.

b. A minimum 9" wide shelf must be provided on each side of each main line within the manhole.

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CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS

SECTION 2: SANITARY PLANNING CRITERIA

TABLE 2.04.3 - COMMERCIAL/INDUSTRIAL FLOW FACTORS

Type of Establishment Future Average Flow	(GPD/1000 Gross Building sq. ft.)
Office Buildings	200
Restaurants	500
Bar & Lounges	300
Hotels & Motels	350
Neighborhood Stores	200
Department Stores	200
Laundries & Dry Cleaning	1000
Banks & Financial Buildings	300
Medical Buildings & Clinics	300
Warehouses	100
Meat & Food Processing Plants	2800
Car Washes	1900
Service Stations	20
Auto Dealer, Repair & Service	150
Super Market	200
Trade Businesses - Plumbers, Exterminator, etc.	200
Mobile Home Dealer, Lumber Co., Drive-In Movies, Flea Markets	300
Places of Assembly - Churches, Schools, Libraries, Theaters	600
Factories - Manufacturing raw products into finished products	800
Hospitals	450 gal/bed

Worksheet for 8" Sewer - Capacity

Project Description

Friction Method	Manning Formula
Solve For	Full Flow Capacity

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.00500	ft/ft
Normal Depth	0.67	ft
Diameter	0.67	ft
Discharge	0.85	ft^3/s

Results

Discharge	0.85	ft^3/s
Normal Depth	0.67	ft
Flow Area	0.35	ft^2
Wetted Perimeter	2.09	ft
Hydraulic Radius	0.17	ft
Top Width	0.00	ft
Critical Depth	0.44	ft
Percent Full	100.0	%
Critical Slope	0.00848	ft/ft
Velocity	2.45	ft/s
Velocity Head	0.09	ft
Specific Energy	0.76	ft
Froude Number	0.00	
Maximum Discharge	0.92	ft^3/s
Discharge Full	0.85	ft^3/s
Slope Full	0.00500	ft/ft
Flow Type	SubCritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%

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Worksheet for 12" Sewer - Capacity

Project Description

Friction Method	Manning Formula
Solve For	Full Flow Capacity

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.00500	ft/ft
Normal Depth	1.00	ft
Diameter	1.00	ft
Discharge	2.52	ft^3/s

Results

Discharge	2.52	ft^3/s
Normal Depth	1.00	ft
Flow Area	0.79	ft^2
Wetted Perimeter	3.14	ft
Hydraulic Radius	0.25	ft
Top Width	0.00	ft
Critical Depth	0.68	ft
Percent Full	100.0	%
Critical Slope	0.00770	ft/ft
Velocity	3.21	ft/s
Velocity Head	0.16	ft
Specific Energy	1.16	ft
Froude Number	0.00	
Maximum Discharge	2.71	ft^3/s
Discharge Full	2.52	ft^3/s
Slope Full	0.00500	ft/ft
Flow Type	SubCritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%

Worksheet for 12" Sewer - Capacity

GVF Output Data

Normal Depth Over Rise	100.00	%
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	1.00	ft
Critical Depth	0.68	ft
Channel Slope	0.00500	ft/ft
Critical Slope	0.00770	ft/ft

Worksheet for 8" Sewer - Capacity

GVF Output Data

Normal Depth Over Rise	100.00	%
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.67	ft
Critical Depth	0.44	ft
Channel Slope	0.00500	ft/ft
Critical Slope	0.00848	ft/ft

D.4 Stormwater Management System

This section of the report is intended to address the drainage analysis for the Rail Yards , and the proposed detention volumes that can be expected with the various basins of the proposed project. The following calculations have been prepared to meet the requirements of Volume II – Design Criteria, Chapter 22: Drainage, Flood Control and Erosion Control of the Albuquerque Development Process Manual (The Manual).

The proposed conditions are obtained from the concepts for the site. The land treatments for the site have been weighted with 90% Impervious (Treatment D) to comply with a commercial development per The Manual. In the interest of being conservative and because the final ground cover for the site is unknown, the remaining 10% is assumed to be Treatment C. The site is located between the Rio Grande and the San Mateo, and therefore has been determined that the site falls within the Zone '2' precipitation zone. Due to the existing drainage patterns observed on site and the conceptual layout of the site we have analyzed the site with three separate drainage basins: A-1, A-2, and A-3. It should be noted that Conceptual Basin A-2 is the Transfer Table, a historic feature that is proposed to be preserved. Use of the space for stormwater retention may not be compatible with preservation of the Transfer Table.

The 100-year 6-hour event was used as the principal design storm per The Manual. A summary of the hydrology for each basin is as follows:

100-Year 6-Hour Storm Hydrology

- Basin A-1:
  Area = 7.37 ac
  P360 = 2.35 in
  Excess Precipitation = 2.021 in
  Peak Intensity = 5.05 in/hr
  C100 Coefficient = 0.899
  Peak Discharge = 33.2 cfs

- Basin A-2:
  Area = 8.23 ac
  P360 = 2.35 in
  Excess Precipitation = 2.021 in
  Peak Intensity = 5.05 in/hr
  C100 Coefficient = 0.899
  Peak Discharge = 37.4 cfs

- Basin A-3:
  Area = 11.71 ac
  P360 = 2.35 in
  Excess Precipitation = 2.021 in
  Peak Intensity = 5.05 in/hr
  C100 Coefficient = 0.899
  Peak Discharge = 53.2 cfs

The allowable peak discharge for the site post development has been established at 2.75 cfs/acre per the city engineering department. The peak discharge for the developed site is projected to be 4.54 cfs/acre. Therefore, stormwater volume detention will be necessary to reduce the peak discharge to the allowable rate. Stormwater detention volumes could be captured and stored within numerous cisterns, or other approved catchment system, on the site. The water captured within the catchment systems will be released to the municipal storm sewer system at a rate no larger than allowable discharge rate. Stormwater runoff may also be retained for use of irrigation at elevations less than the outfall to the municipal system. Should this option be exercised during final design of the storm system, the retained volume cannot exceed 10 acre-ft.

As defined by The Manual, the Hydrograph for Small Watershed method was used to determine the volume of stormwater that must be detained to meet allowable discharge rates for the site. Each of the three (3) basins was analyzed separately. Each basin will contain multiple cisterns so the volumes calculated below represent

the total that must be detained. During the formal design process of the campus, it may be determined that it is more feasible to slow discharge for some cisterns and allow other areas of the site to discharge at a rate faster than that allowed or even freely discharge. This design approach would be acceptable as long as two criteria were met: 1) the total site discharge were to be below the allowable rate of 2.75 cfs/acre; and 2) no cistern were to retain water for a period greater than 6 hours. Should drain times exceed the 6 hour limit, design storms in excess of the 100-year 6-hour storm must be analyzed.

Below is a summary of the analysis for the three (3) major basins of the proposed site. Hydrographs representing the 100-year 6-hour design storm were plotted using the parameters defined by The Manual. The allowable discharge was also plotted on the hydrograph. The area between the two is representative of the detention volume necessary. See the attached Hydrographs for more information.

- Basin A-1:
  Peak Discharge = 33.2 cfs
  Allowable Discharge = 20.1 cfs
  Base Time, tb = 0.713 hours
  Time to Peak, tp = 0.198 hours
  Peak Duration = 0.225 hours
  Detention Volume = 17,978 cf
  = 0.413 ac-ft

- Basin A-2:
  Peak Discharge = 37.4 cfs
  Allowable Discharge = 22.6 cfs
  Base Time, tb = 0.712 hours
  Time to Peak, tp = 0.198 hours
  Peak Duration = 0.225 hours
  Detention Volume = 20,309 cf
  = 0.466 ac-ft

- Basin A-3:
  Peak Discharge = 11.71 cfs
  Allowable Discharge = 32.2 cfs
  Base Time, tb = 0.712 hours
  Time to Peak, tp = 0.198 hours
  Peak Duration = 0.225 hours
  Detention Volume = 28,807 cf
  = 0.661 ac-ft

In summary, the resultant volumes yielded are approximately 2,500 cf of storage required for each acre of the parcel. The consistent unit storage volume is due to use of the uniform Land Treatment of 90% impervious and the uniform allowable discharge of 2.75 cfs/acre. Assumptions made for the non-impervious Land Treatment as well as the time of concentration were conservative. Therefore, the unit storage rate of 2,500 cf/acre is appropriate for future conceptual layout of cisterns as the development of the campus moves forward and drainage basins shift to accommodate desired grading and surface treatments. Use of Low Impact Design techniques such as rain gardens or infiltration swales in the design of the site would result in necessary detention volumes decreasing.

Attachments: Existing Drainage
Conceptual Drainage
Existing Dry Utilities

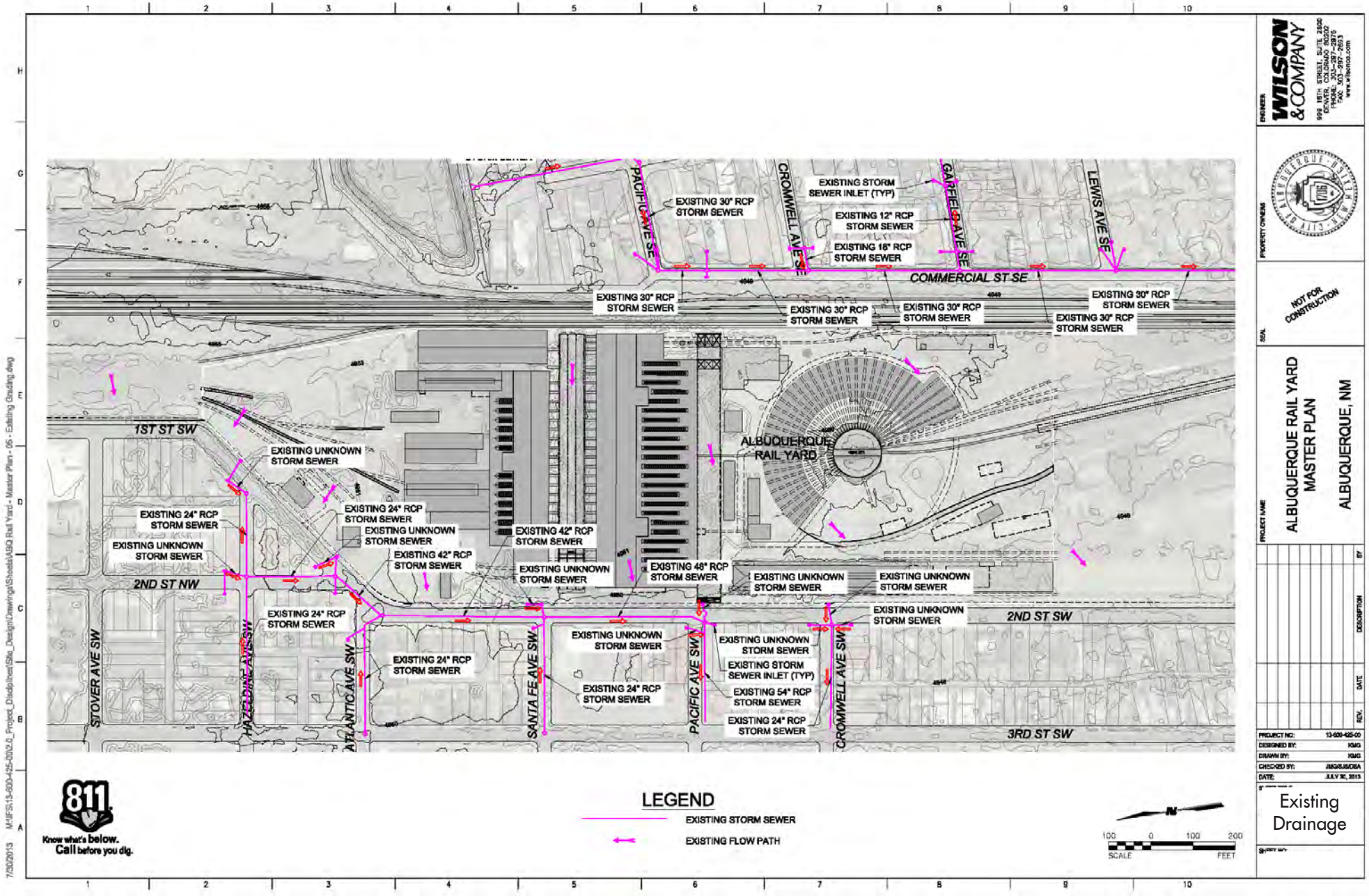


Figure 23a: Existing Drainage

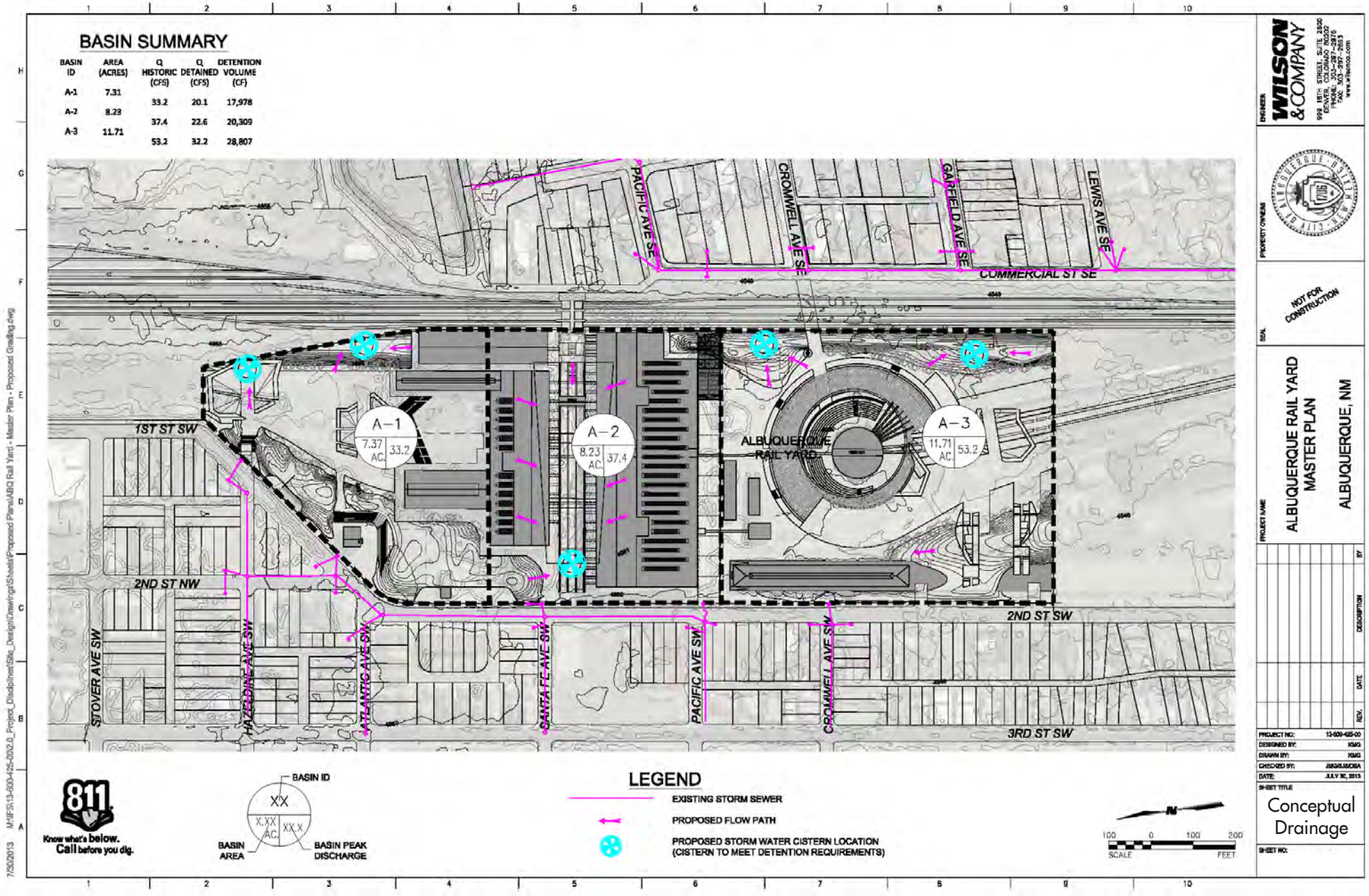


Figure 23b: Conceptual Drainage

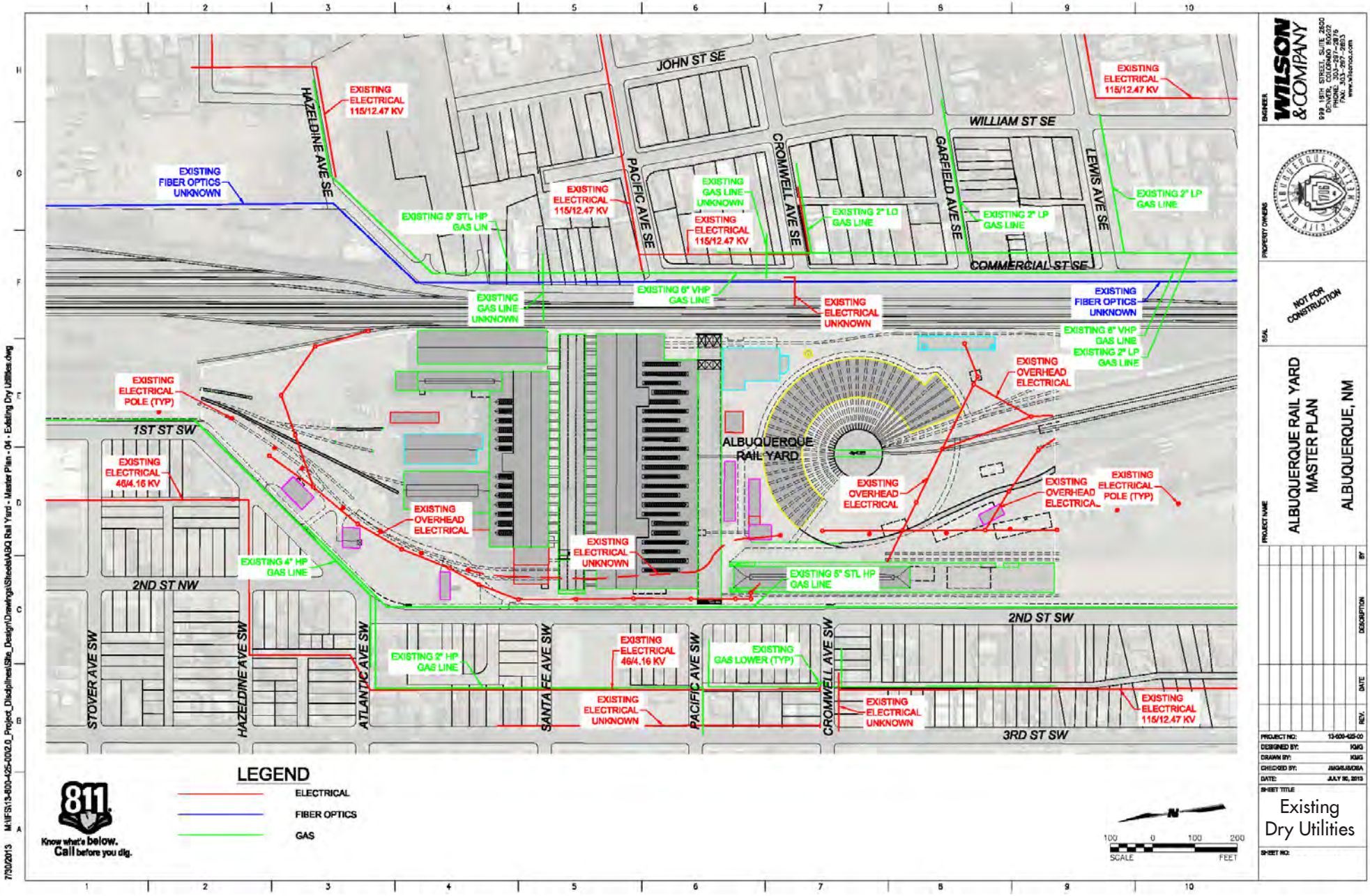


Figure 24: Existing Dry Utilities