NORTHWEST QUADRANT

CREATING A SUSTAINABLE COMMUNITY

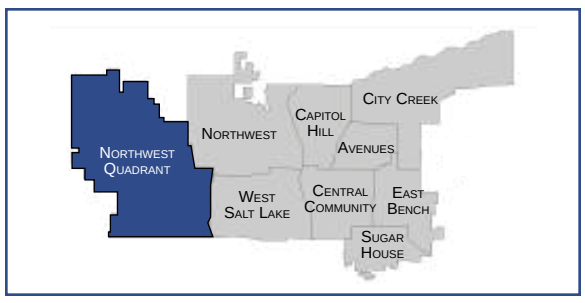
Wetlands in the Northwest Quadrant looking towards the Oquirrh Mountains and the West Bench; New housing in Daybreak, Utah

FOUNDATION

The Northwest Quadrant, Salt Lake City's western edge, includes 19,000 acres of the last major development area within the City. This area, which is located adjacent to the Salt Lake City International Airport and the International Center, with immediate access to Interstate 80 and only minutes from Downtown (Figure 1), is strategically situated to accommodate additional growth. The area also includes important agricultural lands, industrial lands, environmentally sensitive lands (including the Great Salt Lake shorelands), ongoing mining operations, and lands needing reclamation.

Purpose

This Northwest Quadrant Master Plan represents an important milestone in the continuing development of Salt Lake City. The purpose of this Plan is to apply the community's shared values and goals to the establishment of a basis for rational decision-making and planning policy formulation by Salt Lake City's decision-makers regarding future development of the Northwest Quadrant area.



The Northwest Quadrant is one of the City's nine planning areas

This Plan was developed through a community-based planning effort involving landowners, community leaders, Salt Lake City residents, agencies, and key interest groups. The Plan presents a future for the Northwest Quadrant based on methods of development that will sustain and support the community in a sensible and responsible manner.

This Plan strives to balance diverse community values and establish a common vision for the creation of a new western gateway to the City – accommodating industrial use and mixed-use development through the use of new sustainable development tools, while at the same time preserving open space and important features of the Great Salt Lake ecosystem.

This Plan will be the primary tool for providing guidance in the evaluation of future development of the Northwest Quadrant, and will inform daily choices and decisions about growth, housing, transportation, neighborhood development, the environment, education, and service delivery. This Plan will provide the basis for the preparation of development regulations for the Northwest Quadrant and serve as the foundation for its capital improvements program. The Plan will be used by the City Council and the City's Boards and Commissions to evaluate policy changes and make funding and budgetary decisions. City staff will refer to the Plan when evaluating development and building proposals, and take into account its guiding principles and policies when making recommendations. The Plan will also be used by residents, neighborhood groups, and developers to understand Salt Lake City's long-range plans for the Northwest Quadrant.

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Goals of This Master Plan

Salt Lake City's leaders are looking to the Northwest Quadrant to significantly contribute to the City's overall effort of meeting the needs of the residents of Salt Lake City, from open space amenities to new, vibrant, mixed-use neighborhoods. This Plan represents a unique opportunity to make informed decisions on a community-wide scale in an effort to create one of the greatest areas of Salt Lake City. Envision Utah's Quality Growth Strategy identified primary goals to protect the environment and maintain economic vitality and quality of life as the Greater Wasatch Area accommodates anticipated growth. Achieving this vision for the Northwest Quadrant requires clear, attainable goals that address the central issues facing the Northwest Quadrant and the City as a whole. At this Plan's inception, City leaders established that the Plan must:

- Help the City create an environment that fosters an enhanced quality of life for Salt Lake City residents;
- Ensure that the City responds effectively to citizens' social, environmental, and developmental concerns;
- Achieve rational and logical patterns of growth; and
- Maintain a desirable level of environmental quality.

Additionally, the Plan is based on the following assumptions:

- Growth will occur
- Growth can be beneficial
- Judicious management of critical resources is necessary
- The area's unique environmental and cultural qualities need to be preserved
- The supply of essential services must be coordinated with City agencies in a cost-effective manner

Fulfilling these goals will be challenging. Nevertheless, City leaders, technical and advisory committees, stakeholders, and the public are motivated by the challenge of creating a sustainable community in an economically viable fashion, and are committed to a successful outcome. This Plan is guided by the following direction:

"Whatever occurs in this area must be based on the concepts of sustainability: environmental, social and economic."

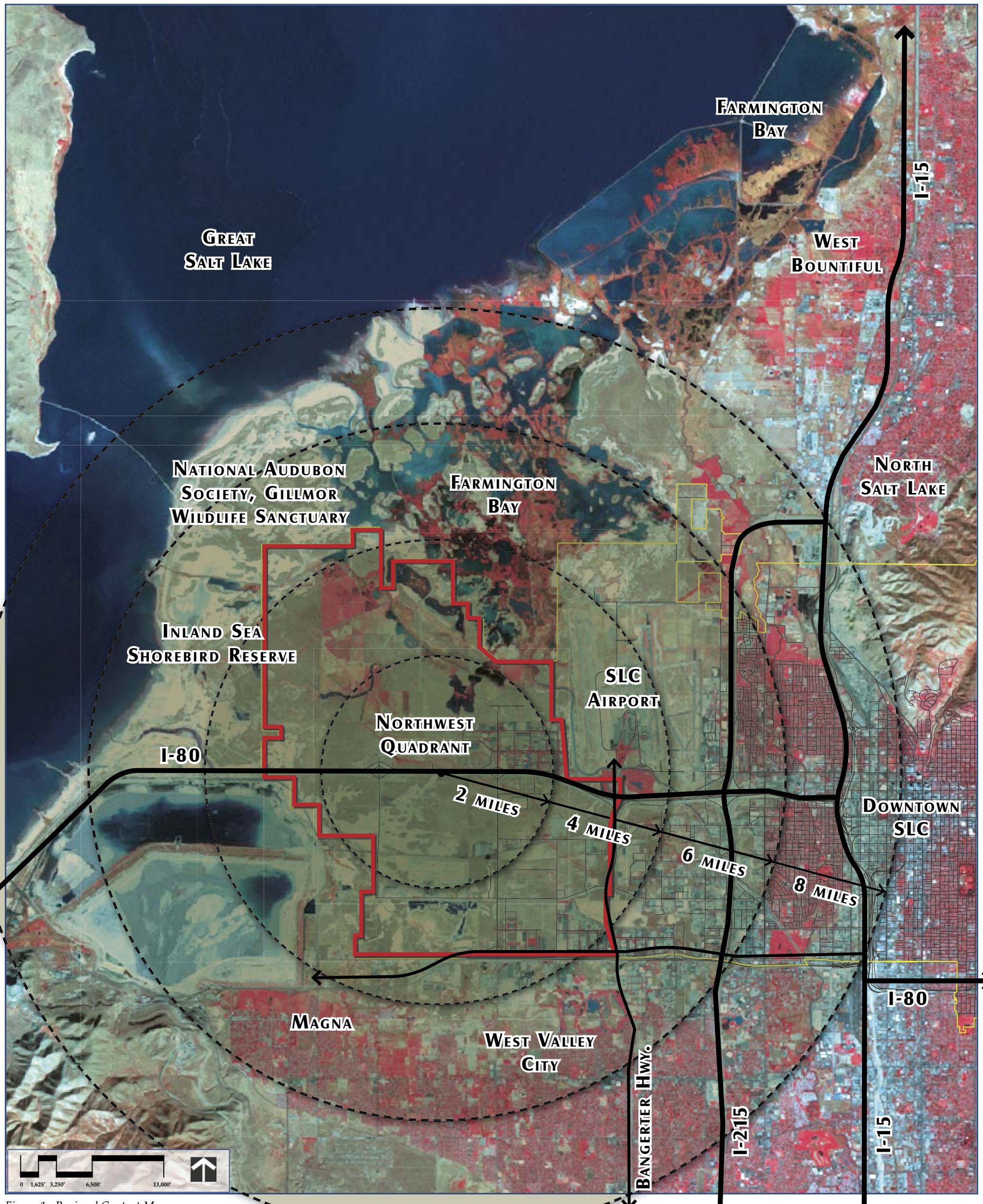


Figure 1. Regional Context Map

Planning Process

The creation of the Northwest Quadrant's first master plan for a new sustainable community within Salt Lake City has required an unprecedented amount of community involvement. Community outreach included 15 Planning Team meetings, 9 Master Plan Advisory Committee meetings, 11 Technical Resource Committee meetings, 60 stakeholder interviews, work sessions with property owners and environmental groups, site visits, and presentations to the Chamber of Commerce and Salt Lake City advisory groups, including the Airport Board, Public Utilities Advisory Committee, Open Space Lands Advisory Board, Transportation Advisory Board, and the Business Advisory Board as well as public hearings before the Planning Commission and City Council. Two public workshops sought input from the entire Salt Lake community.

The first public meeting, a Visioning Workshop, was held in January 2007 at the Salt Lake City Main Library to define the components of a new sustainable community. The purpose of the Visioning Workshop was to outline the Vision for the Northwest Quadrant by recommending components of a sustainable community. Attendees were asked to describe the components of a sustainable community that formed the basis of the Vision.

The second public meeting, a Big Ideas Workshop, was held in November 2007, and focused on review and refinement of the new sustainable community based on three frameworks: Environmental, Transit, and Centers. These three frameworks overlay to determine where development should occur. Sustainability indicators were later identified to evaluate the success of the final Master Plan in meeting the Vision.

The public was notified of both meetings through the Salt Lake City Planning Division website, utility billings, City Council mailings, Planning Division email list, the Technical Resource Committee, Master Plan Advisory Committee, City television ads, and newspaper articles.

As described in Figure 2, the planning process contained five phases conducted over a two-year period:

- *Vision of a Sustainable Community*
- *Opportunities and Constraints*
- *Framework of a Sustainable Community*
- *Testing Sustainability*
- *Implementation of a Sustainable Community*

Northwest Quadrant Visioning Workshop at the Salt Lake City Library, January 2007

Future Envisioned

The Northwest Quadrant will be a new sustainable community that embodies the principles of sustainable development in order to:

- ***balance and integrate the environmental, social and economic components of the community;***
- ***meet the needs of existing and future generations;***
- ***respect the needs of other communities in the region and globally; and***
- ***preserve and enhance natural ecological functions.***

This diverse community should be:

- ***active, inclusive, and safe*** – fair, tolerant, and cohesive with a strong local culture and other shared community activities;
- ***environmentally sensitive*** – providing places for people to live, work, and recreate while protecting natural resources and systems;
- ***well-designed and built*** – featuring a quality built environment;
- ***well-connected*** – with good transportation linking people to jobs, schools, health, other services, and Downtown Salt Lake City;
- ***economically thriving*** – with a flourishing and diverse local economy;
- ***well-served*** – with public, private, community, and voluntary services that are appropriate to people's needs and accessible to all; and
- ***self-sustaining*** – supporting a new population without jeopardizing the City center.

The Master Plan Advisory Committee:

- Salt Lake City Council
- Salt Lake City Planning Commission
- Salt Lake Community Councils
- Federal & State Environmental Agencies including US Fish & Wildlife Service, Utah Division of Wildlife Resources, and Utah Waterfowl Association

The Technical Resource Committee:

- Salt Lake City & County Departments including Planning, Engineering, Public Services, Schools, Airport, etc.
- United States Army Corps of Engineers
- State Agencies including Natural Resources, Parks & Recreation and Transportation
- Large property owners including Suburban Land Reserve, Kennecott Land, Epperson Associates and Riverbend Holdings
- Envision Utah
- Environmental Groups including Friends of the Great Salt Lake and Audubon Society

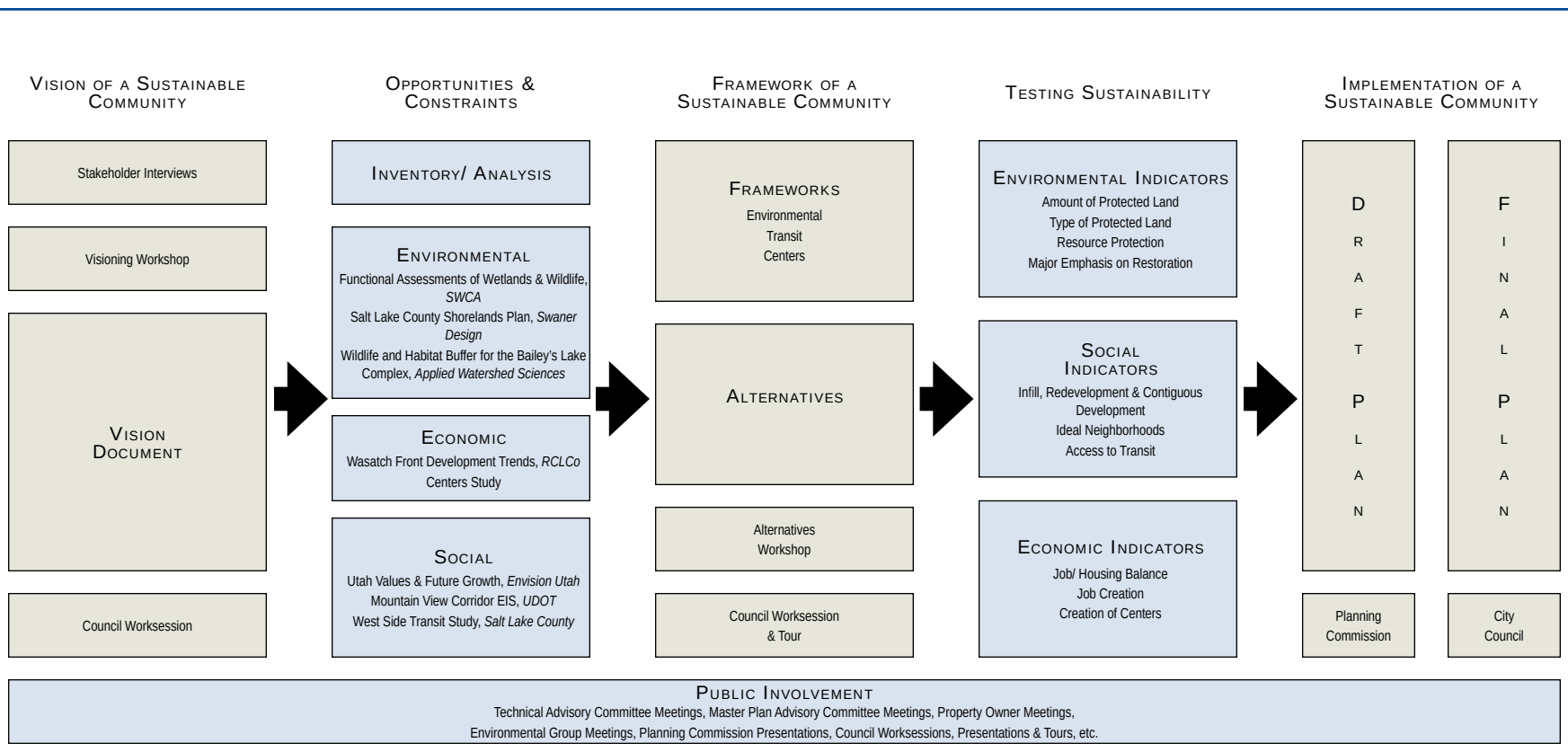


Figure 2. Planning Process

Inventory & Analysis

Physical Description

The Northwest Quadrant is a vast, flat tract of land in the western portion of Salt Lake City, totaling approximately 29 square miles or nearly 19,000 acres. The Great Salt Lake forms a northwestern boundary for half of the Northwest Quadrant: to the west lie the Oquirrh Mountains; to the east are the Salt Lake City International Airport, the Jordan River, and the West Salt Lake Community industrial area; and Magna and West Valley City lie to the south.

Historically, portions of the Northwest Quadrant, north of Interstate 80, have been used for grazing, light farming, and hunting. Today, several hundred acres include a working ranch (Gillmor) that has been recognized as a Centennial Ranch, being operated by the same family for over 100 years. In the past, large canals and ditches were dug for irrigation purposes and to carry spring runoff from the mountains to the Great Salt Lake, and more recent stormwater management systems have bifurcated the natural water regime. Habitat and scenic resources found in the area include the Bailey's Lake floodplain. While outside the Northwest Quadrant, it is noteworthy that as mitigation for mining operations, Kennecott Utah Copper has established the Inland Sea Shorebird Reserve adjacent to the western boundary.

The area adjacent to the Great Salt Lake is highly affected by seasons, drought and flood cycles, groundwater levels, changing lake levels and impacts from human activities, including recreation, vandalism, illegal dumping, noise, stormwater runoff, and closed landfills. Nearby development is comprised of a significant amount of industrial land uses, including the Salt Lake City International Airport, the International Center and the Western Industrial area's warehouses and distribution facilities, mining operations, and landfills.

Mix of wetlands and open water at a duck club

Businesses along Charles Lindbergh Drive within the International Center

Zoning & Land Use

Current Zoning. As shown in Figure 4, the Northwest Quadrant is currently zoned Agriculture, Industrial, General Commercial, and Open Space. Vacant areas are primarily zoned Industrial, Agriculture, or Open Space. The Agricultural zoning is intended to act as a holding zone until final zoning is determined, yet allows for single family development on 10,000-square-foot lots.

Other applicable regulations include the Landfill Overlay, the Airport Overlay Zone, which restricts certain development types around the airport; and the Lowland Conservancy District, which protects canals, drainages, and lowland areas from substantial development impacts.

Current Land Use. As shown in Figure 4, approximately three-quarters of the land in the Northwest Quadrant is undeveloped, with uses including wildlife management, ranching, farming, and brownfields (i.e., landfills needing reclamation). Thirty-five percent of the community consists of agricultural uses. A relatively small group of property owners control the majority of the Northwest Quadrant's undeveloped land, providing a unique opportunity for quality planning. Developed lands consist of light industrial, intermodal facilities,

Brownfield Reclamation and the Area's Landfills

North Temple Landfill

The North Temple Landfill, or Old Salt Lake City Landfill, was operated by Salt Lake City Corporation as its municipal landfill from 1959 to 1979. The landfill covers approximately 790 acres and houses an estimated 5.3 million cubic yards of municipal solid waste. The refuse cells vary in depth from 2 to 20 feet in depth. Excavations and boring have revealed a wet environment wherein rapid degradation of the waste has occurred. This is due to a permeable cap of native soil and a fairly thick bottom layer of clay.

The North Temple Landfill has been accepted into the voluntary clean-up program administered through the Utah Department of Environmental Quality, Division of Environmental Response and Remediation. Not only is this landfill an eyesore at the Gateway of the City, it's presence precludes any higher or better land use and could pose significant environmental impacts in the area if not properly remediated. Remediation of the landfill will not only enhance economic development opportunities for the City, but it will also remedy an enormous environmental liability while preventing any further degradation of the area.

Cannon Pioneer Landfill

The Cannon Pioneer Landfill, formerly known as the Old Salt Lake County Landfill, was operated by Salt Lake County as a municipal landfill from 1964 until 1975. The former county landfill property was owned by the Cannon and Pioneer Stakes of The Church of Jesus Christ of Latter-day Saints. The landfill covers an area of approximately 250 acres. Depth to groundwater is less than 10 feet. It is estimated that there is approximately 3 million cubic yards of waste disposed at the landfill.

The City has been seeking a remedy for the contamination at this landfill. In an effort to assist with these problems, Suburban Land Reserve is currently exploring the feasibility of purchasing the Cannon Pioneer Landfill and remediating both sites simultaneously. This would be an unprecedented remediation project in scale and complexity that could create a public/private partnership that benefits all involved.

This Master Plan, and the development opportunities described herein represents a cooperative effort by many who recognize the significant environmental impacts these two landfills have and will continue to create in this area and offer development incentives and at least some of the economic means to appropriately address these enormous problems.

Figure 3. Brownfield Reclamation and the Area's Landfills

airport related uses, distribution, commercial, and office. The tailings impoundment and existing landfills are located adjacent to industrial property. A major regional rail line and extensive highway infrastructure, which exist throughout the area, support many distribution and warehouse businesses. The Lee Kay Center for hunter education and shooting range facilities, owned by Division of Wildlife Resources and located between 1350 South and 2100 South and west of 5650 West, is the largest public open space in the Northwest Quadrant.

Demographics & Businesses

The Northwest Quadrant is one of the City's key employment areas. It contains numerous industrial warehousing and distribution uses, but lacks necessary residential households to balance employment. To that end, with careful and imaginative planning, the Northwest Quadrant has potential to become the City's premier mixed-use development area. In 2007, fewer than 20 households were located in the Northwest Quadrant.

Including the International Center and the Salt Lake International Airport, over 30,000 jobs exist within and immediately adjacent to the Northwest Quadrant, reflecting a job to housing balance of 1,500 to 1. This ratio suggests an untapped opportunity for additional housing and support services to maintain a housing/employment ratio similar to the development pattern in the Wasatch Front region.

Market studies and state estimates forecast a large demand for new employment uses in the region. In 20 years, Salt Lake County should expect to add approximately 400,000 new jobs, focusing on education and health services; professional and business services; government; and trade, transportation, and utilities sectors.

With the lowest vacancy rate in the County, the Northwest Quadrant has the opportunity to provide new office uses at an annual regional absorption rate of over 500,000 square feet per year. Due to the existing transportation network, large lot sizes, low vacancy rates and a focus on industrial and warehousing uses, the Northwest Quadrant could fulfill the City's need for industrial land, annually supporting over 250,000 square feet per year of industrial space. New hotel uses will also be supported in the area.

The Interstate 80, Bangerter Highway Interchange near the Salt Lake City International Airport

Over 25,000 households in the next 20 years could be supported by new employment areas. New housing should provide a variety of housing types and numerous price points to attract a diversity of residents to the area. New retail areas, including a large town center, could provide services to local residents.

A significant increase in housing within the Northwest Quadrant, along with employment growth, will help minimize the impacts of the region's development pattern, shorten travel times, and aid in improving the area's air quality.

Roadways & Transit

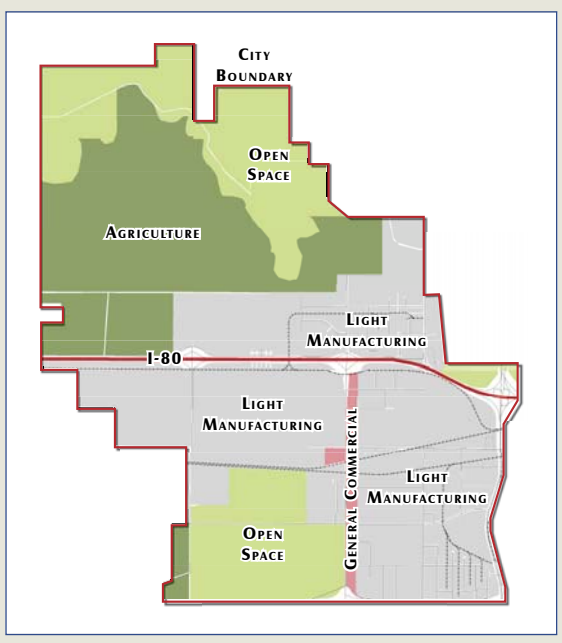
Interstate 80 bisects the Northwest Quadrant, Bangerter Highway borders the east edge, and SR-201 traverses the south edge; all provide regional access to developed sites.

North of Interstate 80, large expanses of undeveloped land are served by unmaintained dirt roads.

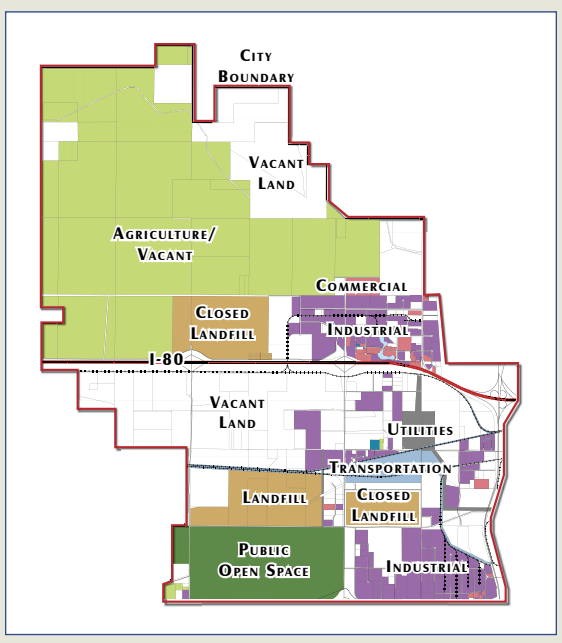
The Utah Department of Transportation (UDOT) 2006 traffic counts, which represent the Average Annual Daily Traffic (AADT) for segments of roadway, indicate that the highest traffic volumes in the Northwest Quadrant occur on SR-201, and the lowest volumes occur on Amelia Earhart Drive within the International Center. Interstate 80 is currently underutilized and could handle larger traffic volumes. Traffic on selected segments of roadways is indicated in Figure 4.

The Utah Transit Authority (UTA) operates six bus routes, serving various destinations in the Northwest Quadrant. Routes 50, 51, 53, and 54 serve the International Center, while routes 48 and 56 serve the industrial park area at the intersection of Bangerter Highway and SR-201.

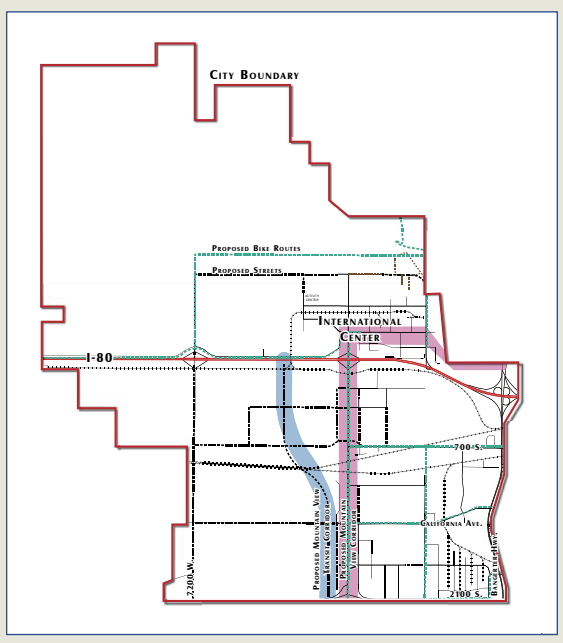
Planned Transportation Improvements. A great opportunity exists to create a multi-modal, environmentally sensitive, and well-connected transportation system that provides appropriate transportation choices. The 2006 Salt Lake City Transportation Master Plan identifies several roadway and transit improvements within and adjacent to the Northwest Quadrant.



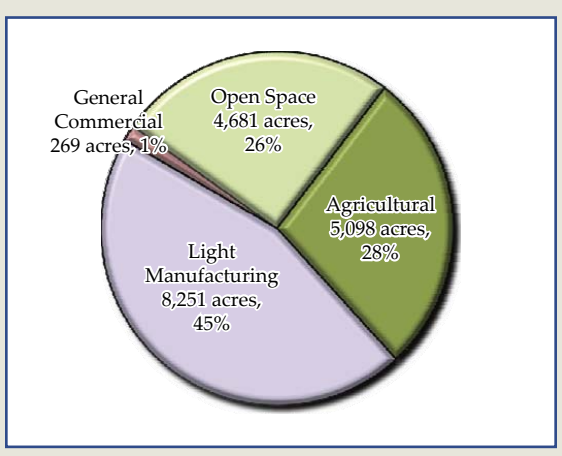
Existing zoning



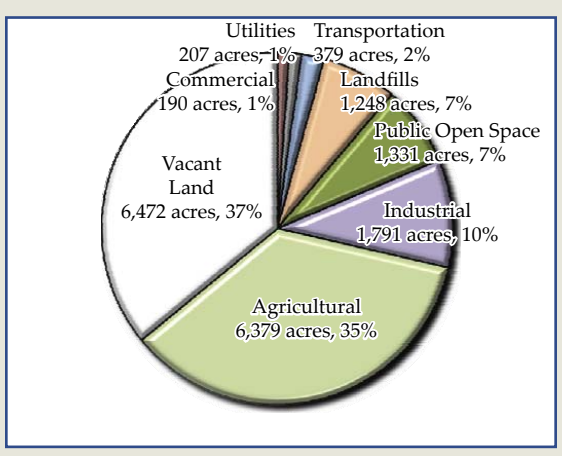
Existing land use



Existing and planned transportation facilities



Zoning by acreage



Land use by acreage

Roadway	Segment	AADT
I-80	Bangerter to Wright Brothers Drive	54,045
I-80	West of 5600 West	26,885
Bangerter Hwy.	SR-201 to I-80	32,700
SR-201	Bangerter to 5600 West	66,800
5600 West	Bangerter to I-80	19,565
Amelia Earhart	Entire corridor	1,495
5600 West	North of I-80	3,305
700 South	Bangerter to 5600 West	1,545
California Avenue	Bangerter to 5600 West	7,775

Average annual daily traffic for major roads

Figure 4. Existing Conditions

The Mountain View Corridor is currently undergoing an Environmental Impact Statement (EIS) to determine the most appropriate location for a new North/South transportation corridor for the western side of the valley. UDOT's preferred alignment runs just west of 5600 West, and involves a system to system connection approximately halfway between the two existing interchanges on Interstate 80. The proposal also includes Bus Rapid Transit (BRT) as the most suitable transit option for integration into the Northwest Quadrant.

The future Airport Light Rail Transit line (LRT) extension should be considered as an additional opportunity for the area, and is also currently undergoing an EIS. This TRAX line could be extended from the airport through the International Center and into the identified Town Center of the Northwest Quadrant.

Kennecott's West Bench Master Plan proposes a transit corridor to follow the 7200 West alignment, connecting communities along the West Bench to Interstate 80. Although BRT is proposed initially, the opportunity to introduce an LRT line in the future remains. A connection between this LRT route and the proposed Airport LRT line would create a transit loop around the western edge of the Salt Lake Valley.

Planned improvements for arterial streets focus on increasing capacity near existing job centers, specifically by providing a "ring" road north of the International Center and improving roadways around California Avenue. Planned improvements for collector streets focus on the area between Interstate 80 and 700 South and around 5600 West, and include 5700 West, 6600 West, 5500 West, 5200 West, and 300 South.

Parks, Trails & Recreation

Due to its undeveloped nature, there is presently very little in the way of existing developed parks, trails, and recreation facilities in the Northwest Quadrant. Wingpointe Golf Course, owned by the Airport Authority and operated by Salt Lake City, is located just north of Interstate 80, adjacent to the Salt Lake City International Airport. There is also an off-street shared use trail along West North Temple and Lee Kay to the airport that connects to dedicated bike lanes on West North Temple. A dedicated trailhead for this off-street section of the Airport trail lies at the intersection of West North Temple and North 2400 West. Due to airport security regulations, the trail is open to the public during the day but is restricted at night and during times of national emergency. The 2004 Salt Lake City Bicycle and Pedestrian Master Plan

Existing Trail and Park Space within International Center

indicates a proposed trail around the west side of the airport, planned as a 10-foot wide shared use trail connecting 2200 North with the existing shared use path south of the airport. It is envisioned that besides being a popular route for bicyclists, this new route may also become a favorite for hikers and nature viewers since it passes through the large wetlands and playas along the shores of the Great Salt Lake.

The 1992 Salt Lake City Open Space Master Plan recognized that the Northwest Quadrant should be protected where necessary, and celebrated and utilized for public recreation and enjoyment where appropriate. These resources offer an opportunity to establish an entire community integrated with the landscape, whereby residents can enjoy the scenic views, recreational opportunities, and ecological functions naturally afforded to them.

Active recreation, parks, and trails are envisioned as significant components within this Master Plan, to serve all residents and promote a healthy and active lifestyle.

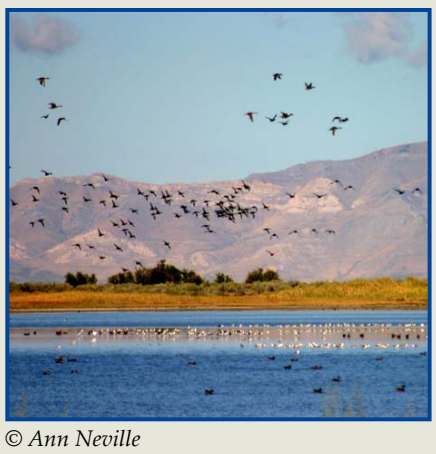
Schools

Currently no schools exist within the Northwest Quadrant, but with the expectation that the Northwest Quadrant will attract families with school-age children, the Northwest Quadrant could expect enrollment numbers of up to 15,000 children. Based on these figures and consistent with current Salt Lake School District standards, there is a potential need for 15 new elementary schools, eight middle schools, and at least two high schools. Specific school facilities should be planned for the community, in conjunction with the school district.

Salt Lake City International Airport

The Salt Lake City International Airport is located adjacent to the Northwest Quadrant, but designated future airport expansion lies within the eastern edge. The need for a fourth parallel runway was addressed in an "Airport Layout Plan Update "study in 2006. The timeframe for the new runway is uncertain, however the study recommends that additional capacity should be considered before the airport begins to experience significant operational delays. As a proactive measure to comply with the study recommendation, the airport has begun the process of acquiring land as it becomes available, and as shown on the Future Land Use Map as the Airport Influence Zone.

Regionally Significant Scenic & Wildlife Resources



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Inland Sea Shorebird Reserve

Directly adjacent to the Northwest Quadrant, Kennecott Utah Copper's Inland Sea Shorebird Reserve (ISSR) is a 3,670-acre shorebird and waterfowl reserve along the south shore of the Great Salt Lake. Created to offset the loss of wetlands affected by expansion of its tailings impoundment, it is now one of the largest wetland mitigation banks in the United States. By cleaning the site and directing and damming water sources to sustain the wetlands, the area was transformed into an important component within the Great Salt Lake ecosystem.

Consisting of five mitigation ponds and four additional ponds, the ISSR primarily serves as refuge for shorebirds and waterfowl, though deer, antelope, rabbit, skunk, coyote, red fox, voles, field mice, chorus frogs, racers and gopher snakes are often spotted on site. The number of bird species at the ISSR has grown from 50 in 1995 to more than 150 today, including snowy plovers, American avocets, long-billed curlew, peregrine falcons and burrowing owls.

The ISSR is part of a larger ecological unit, Gilbert Bay, which was accepted in 2004 as a BirdLife International and National Audubon Important Bird Area, recognizing the area for its outstanding value to bird conservation.

Bailey's Lake

Bailey's Lake is a geological landform created by the Jordan River as it ran through the area during prehistoric time. For thousands of years the main channel of the river flowed south of Bailey's Lake. Alluvial materials deposited as the river slowed to enter the Great Salt Lake and built a large delta. Remnants of deltic features can be observed today between the Goggin Drain and I-80. When the river changed course and began flowing outside its previous channels and banks, it eroded unconsolidated Lake Bonneville sediments and cut deeply to create the incised channel meander, which today is referred to as Bailey's Lake. The Jordan River continued to alter its course, moving to the east to its present location, and no longer courses through Bailey's Lake, nor is it now within the Northwest Quadrant.

This landform extends over three miles in length and exceeds half a mile in width in some areas. The interface between the upland and Bailey's Lake is sudden, abruptly dropping in elevation. A system of wetlands occurs throughout this riverbed system.

Figure 5. Natural Area of Importance within and adjacent to the Northwest Quadrant

The Land Use Plan

The future land use framework depicted in Figure 7 illustrates a conceptual physical embodiment of the Plan's Vision. It is based on three frameworks for a sustainable community: Environmental, Transit, and Centers, all further envisioned below and illustrated in Figure 6.

Environmental Framework

A significant portion of the Northwest Quadrant will form a hierarchy of natural systems; create a green edge to Salt Lake City; buffer the Great Salt Lake and Bailey's Lake; and create an internal greenway system within the developed portion of the Northwest Quadrant.

Natural Areas, consisting of the most sensitive resources, are characterized by restricted human access and impact and form the core of the Environmental Framework. Consolidated wetland systems, key uplands, and the Lake's floodplain are included in these areas. Bailey's Lake and the edges of the Goggin Drain are within this area and could be restored, recreating the historic lake bed and enhancing wildlife habitat. Buffers, including a variety of barrier features such as open space, roads, swales, fences, and berms should be used to restrict human intrusion into the area.

Lands to be included in the Natural Areas will be identified based on characteristics described in Table EA-2.1, and through processes described in the Implementation Table, the Constraints Table and the Buffer Toolbox Framework. One of the first steps in implementing this Master Plan is to conduct the necessary field work, studies and analysis to more precisely identify and delineate the boundaries of the Natural Areas and Conservation Development Zone, as referenced in the Buffer Toolbox Framework. Such boundaries may be influenced by proposed enhancement or mitigation work, the intent being to consolidate areas to be protected within sensible and contiguous boundaries susceptible of efficient and effective management.

The Conservation Development Zone is intended to buffer Natural Areas while managing development. This area would allow for conservation neighborhoods and preservation of important uplands, while providing necessary park and open space areas that could include interpretive and educational components along the edge of Natural Areas. After delineation of the Natural Areas, buffers within the Conservation Development Zone will be established, based on the identification of proposed uses and using the Buffer Toolbox.

Greenways can serve as linear parks, open space and multipurpose utility corridors, connecting neighborhoods, providing green infrastructure, creating pedestrian corridors, providing active recreational uses, and creating wildlife corridors. Greenways may connect the developed areas north and south of Interstate 80 and provide links to regional trail corridors serving the greater Salt Lake Valley.

Multi-Modal Transportation Framework

Residents will be afforded a new level of mobility. A dedicated light rail line will extend from Downtown to the Salt Lake City International Airport and may continue through the Northwest Quadrant. This new corridor would run through a new Transit-Oriented Development (TOD)/ Employment Corridor, including existing businesses within the International Center, new offices and employment areas, hotels, commercial and retail, terminating at the Town Center. Light rail stations would serve the estimated 18,000 residents anticipated to live and work within a half-mile of the transit corridor. The terminus of the transit corridor would be a large Town Center, including approximately 6,000 households and 3,200 jobs. A new commuter rail stop on the south side of the Town Center would provide a regional rail connection to Tooele County. A transit loop will connect the neighborhood centers with the Town Center.

Two north-south dedicated transit routes will connect the area to the rest of the Valley. The Mountain View Corridor BRT System forms the central north-south spine, spanning over Interstate 80 to complete a critical connection. An additional north-south transit corridor along 7200 West will connect the West Bench communities to the new Town Center, the Airport, and Downtown.

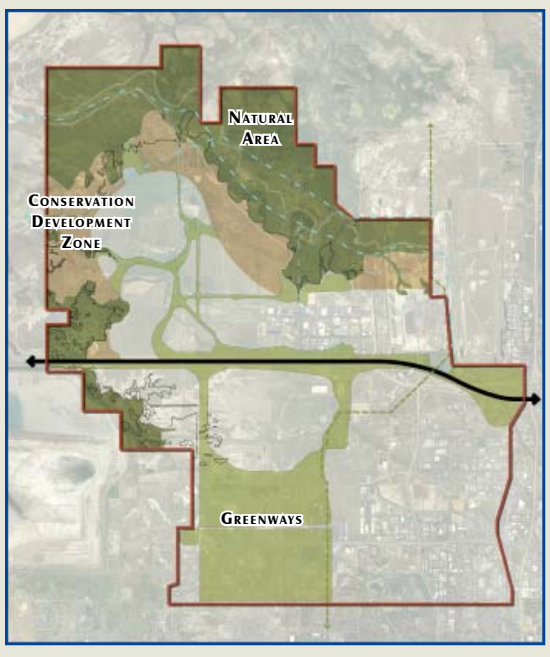
Complementing convenient regional access from Interstate 80 is a fine-grain road system that will distribute traffic in a highly efficient fashion. On and off-street bike and pedestrian trails are located within all arterials and would connect to regional trails located in greenway corridors. Within the northern development area, an arterial road will surround the community, containing development within the interior of the site and creating a separation between higher impact land uses and the Conservation Development Zone.

Easy access to other modes of transit will reduce automobile trips in this community. Travel times to Downtown, the Airport, and employment centers will be under 20 minutes. Employees will be able to live in the community where they work. Doing so has the potential to lower average commute distances, relieve congestion, and decrease overall carbon impact.

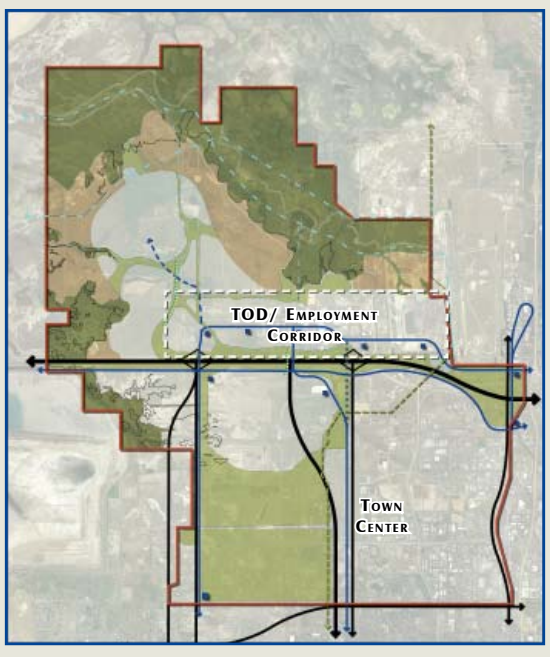
Center & Employment Districts Framework

Compared to other metropolitan areas of approximately the same size, Salt Lake City could support several additional centers without competing with Downtown. The 2007 Update to the Envision Utah Values Study found that people prefer future growth within existing communities or within centers. The Northwest Quadrant is the Wasatch Front's largest opportunity to create both new Town Centers, while incorporating a compact residential and employment base in proximity to Downtown and other developed areas and existing infrastructure. Currently boasting 30,000 existing jobs within and adjacent to the Northwest Quadrant, the area already has a substantial employment base. But with a lack of residential areas, the area has been contributing to sprawl and greenfield development in outlying areas and adjacent counties. With such a significant potential to add both jobs and housing within the area, it reduces the possibility that employers and residents would locate elsewhere, outside the City and County.

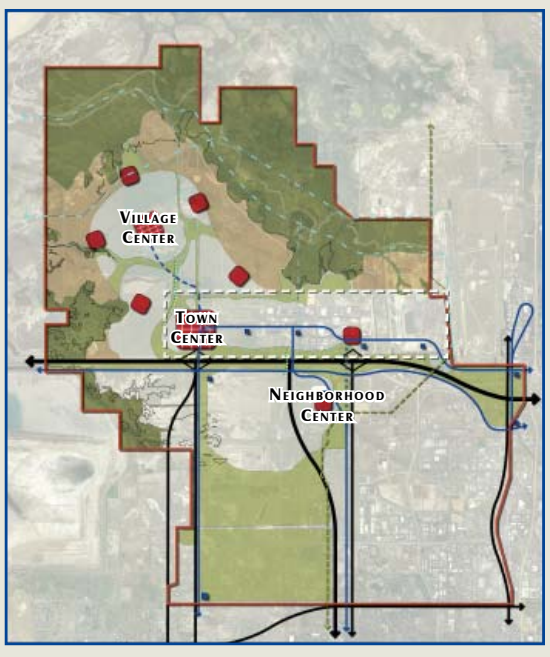
Over 60,000 employees could one day work in the Northwest Quadrant. A new Town Center forms the livable core of the new community, including mid-rise buildings, walkable commercial, a high



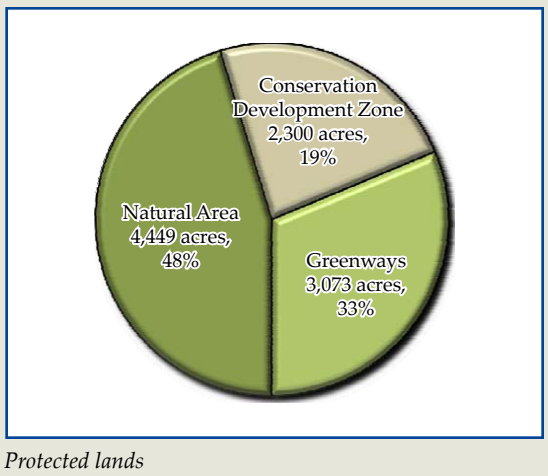
Environmental



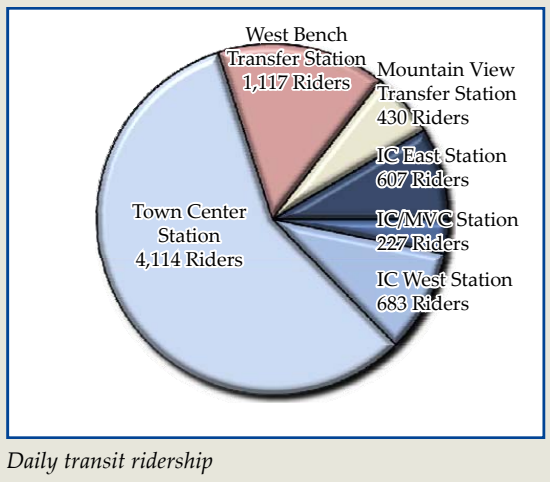
Transit



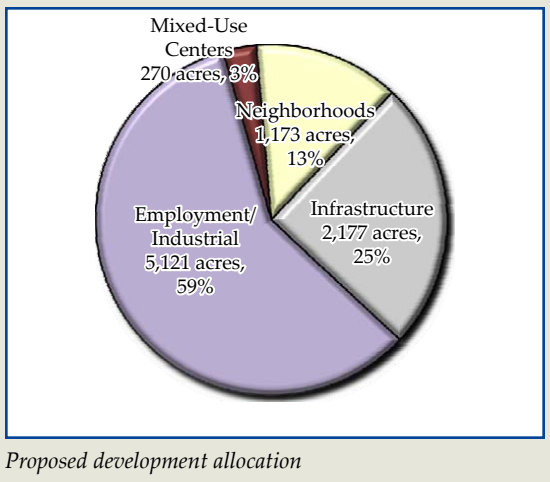
Centers and employment



Protected lands

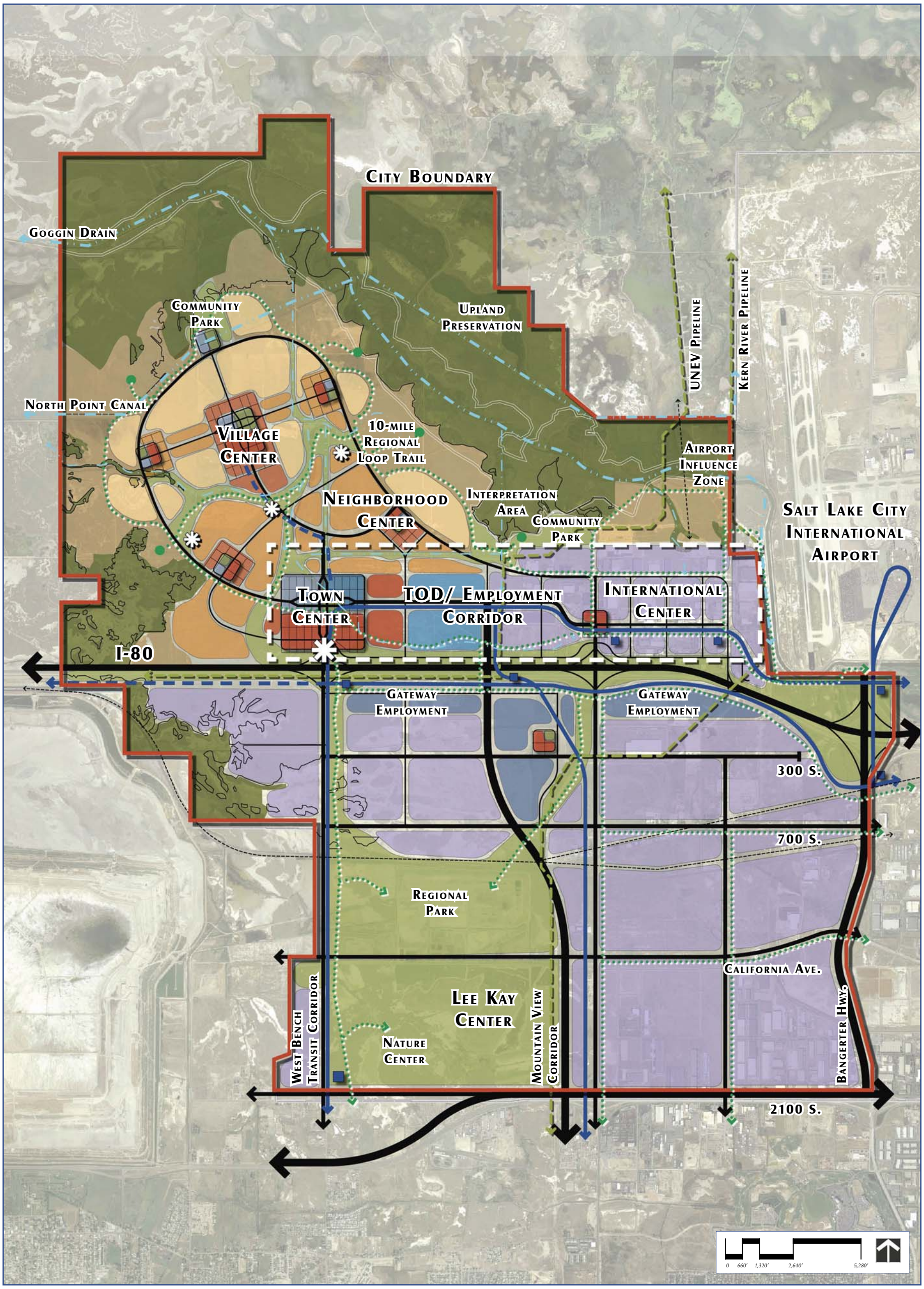


Daily transit ridership



Proposed development allocation

Figure 6. The Northwest Quadrant Frameworks



Legend

Miscellaneous Elements:

- Existing Drainages
- 4217' Elevation
- Transit Alignment
- Transit Stop
- Regional Trail
- Trailhead/ Trail Termination
- Pipeline

Land Uses:

- Industrial
- Retail
- Civic
- Office
- Gateway Office/ Industrial
- High-Density Residential
- Medium-Density Residential
- Low-Density Residential
- Conservation Development Zone
- Natural Area
- Parks/ Greenways

This Future Land Use Map portrays the general land uses for the Northwest Quadrant but specific locations are likely to vary as specific development is proposed. This Master Plan recognizes the inherent limitations in anticipating community needs and market driven demands, and identifying solutions to those needs and demands that will withstand the test of time over a long period of development. Decisions regarding specific development criteria based on this Master Plan shall be made objectively based on the best science and planning techniques available at the time.

Figure 7. Northwest Quadrant Future Land Use Map

school, 6,000 households, 3,000 jobs, and a local and regional transit hub, creating an appropriate gateway to Salt Lake City.

Located approximately one mile northwest, a complementary Village Center forms a community-oriented center with walkable retail, 1,500 households, 400 jobs, schools, and civic amenities. Seven smaller Neighborhood Centers would form the heart of each residential neighborhood and provide neighborhood services, recreation centers, civic plazas, and elementary and middle schools.

The industrial base of Salt Lake City is ensured through the identification of additional industrial lands, reuse of underutilized industrial lands, redevelopment, and the cleanup of key brownfield sites. At least 60% of developed lands will remain as employment or industrial uses, protecting the employment and industrial base of Salt Lake City.

New residential neighborhoods incorporating over 25,000 households create new housing stock for Salt Lake City. Those who work in the area and Downtown will have an opportunity to live in the area. A variety of amenitized neighborhoods with a range of housing types for a diverse population will be minutes from Downtown and the Airport. Conservation-oriented neighborhoods located in the Conservation Development Zone will surpass all metrics of sustainability on the edge of the area. Walkable, quality growth neighborhoods, each with their own distinct character, form the core of the site. Quality high density and mixed-use areas are well-positioned near centers and transit corridors and stations. The job to housing ratio will be substantially increased to approximately 3 jobs per household, resulting in a sustainable urbanized area.

A New Sustainable Community

The Northwest Quadrant has tremendous potential to lead the City and the region in sustainable development, which includes the implementation of energy efficiency measures to reduce nonrenewable energy reliance; enhance environmental quality; and ensure sustained economic vitality. Achieving this requires that decisions and choices made today about development in the Northwest Quadrant should not limit the choices and opportunities of future generations. To that end, the Northwest Quadrant community needs to safeguard and, in some areas, enhance resources, prevent harm to the natural environment and human health, and promote economic sustainability to benefit current and future residents.

The Northwest Quadrant community would be sustainable economically, only if it derives the maximum benefits possible from local wealth and resources and invests that wealth back into the community. It would be sustainable socially, only if it meets the basic needs of its residents for food, housing, education, employment, community services, and transportation. It would be sustainable environmentally, if it not only protects significant resources, but enhances them. In order to support such hallmarks of sustainability, there must be specific policies to encourage economic development and growth in the Northwest Quadrant area. Focused economic development efforts can lead to a strong and diversified economy resulting in well planned, viable, and safe neighborhoods; adequate infrastructure; ample entrepreneurial opportunities; sufficient capital; a nurtured natural and cultural environment; quality jobs; and a well-educated and highly trained workforce.

Furthermore, a sustainable Northwest Quadrant community has the potential to significantly contribute to the vibrancy of the City and the region. It can develop into a complementary center to Salt Lake City's Downtown, strengthening the City's overall tax base. This can be achieved by developing a diverse mixture of businesses anchored by the Salt Lake City International Airport, including vibrant Neighborhood Centers served by neighborhood-oriented local businesses like grocery stores and doctor's offices, and by balancing employment growth and affordable housing.

The addition of the Northwest Quadrant community as one of Salt Lake City's sustainable communities will also ensure that Salt Lake City remains the core of services in the region. As such, the Salt Lake metropolitan area will enhance its regional economic competitiveness as a great place to live and do business.

Sustainability Indicators

Sustainability indicators at the community-wide level answer a question posed at the inception of this plan – can we meet the Salt Lake community's definition of a new sustainable community, environmentally, socially, and economically? This would mean that this community protects key environmental resources in perpetuity, balances jobs and housing, redevelops brownfield sites, intensifies underutilized areas and provides new social services. Found on the following page are twelve community-wide indicators that set the stage for the implementation of this community. Indicators vary from new sustainable neighborhoods to a range of protected natural areas. For many, they may also ask the next question - have we also met global standards for sustainability? The planning consultant's (EDAW) recent studies demonstrate that from 50% to 80% of carbon reduction community-wide is related to one factor – transit ridership. Since the Northwest Quadrant Master Plan is premised on access to three dedicated transit systems, including a new light rail connecting to the Salt Lake City Airport and Downtown, we are able make this statement – the new Northwest Quadrant Community meets the definition for a new sustainable community; locally, nationally and globally.

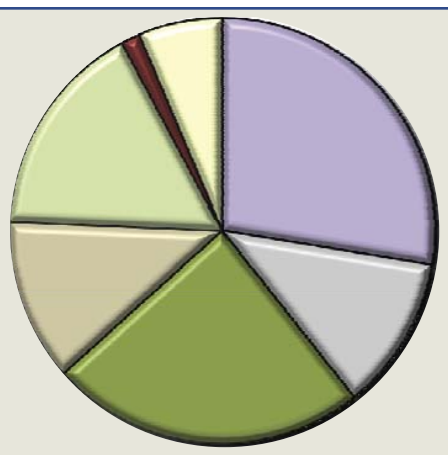


Figure 8. Future land use breakdown

Sustainability and Transit

Whether you are reducing carbon impact, creating an ideal community based on regional values, increasing trip capture, attracting new employers, reducing sprawl, or reinforcing connections to Downtown, success is premised on access to transit. In 2008, Salt Lake City, Salt Lake County, WFRC, UTA, property owners, local jurisdictions, and other partners initiated the West Salt Lake Transit Study to evaluate appropriate locations and modes for transit on the west side of the valley. The evaluation is based on proposed land use plans, including the Northwest Quadrant Master Plan.

Premised on a vision for transit, and now grounded in analytical data, the study provides encouraging results. The study's consulting team, AECOM, anticipates that the Valley's highest ridership will come from proposed light rail extension from Downtown, to the airport, through the International Center, and to the new communities of the Northwest Quadrant north of I-80. Two other less intense modes will serve the areas south of I-80. These include a new inter-urban rail system to the West Bench communities and a BRT route along the proposed Mountain View Corridor.

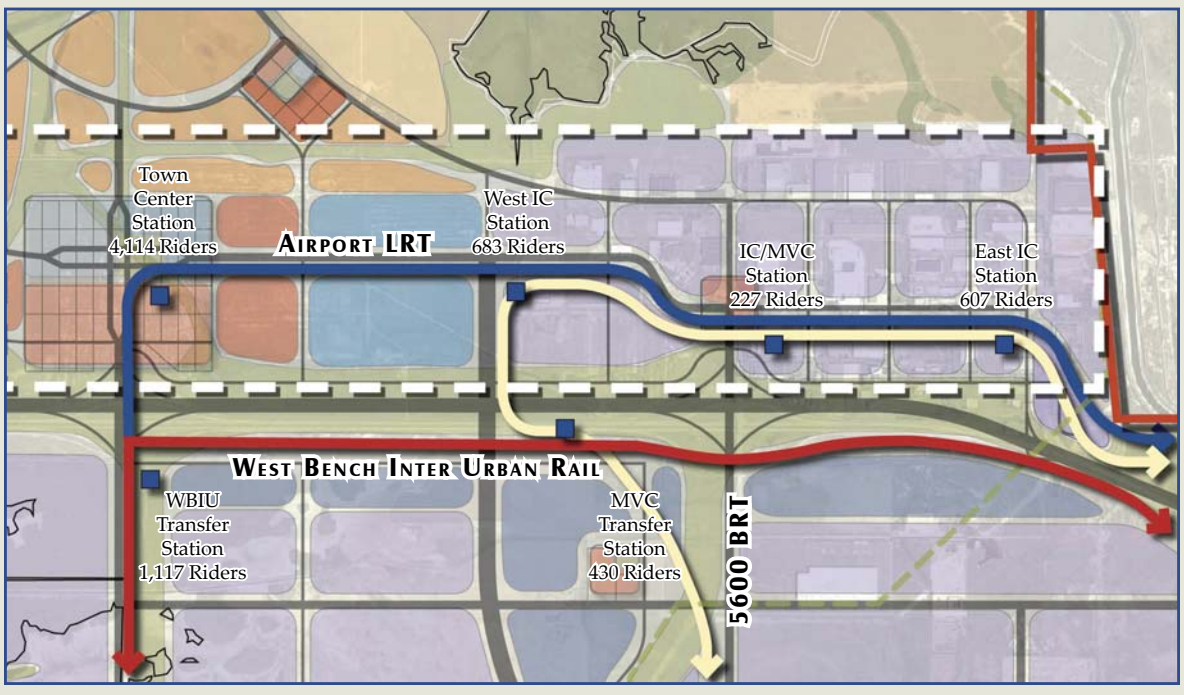


Figure 9. The Northwest Quadrant Transit Framework

5600 Bus Rapid Transit

Airport Light Rail Transit

West Bench Inter Urban Rail

Environmental Sustainability Indicators

#1: Amount of Protected Land

- 53% of the site, over 9,000 acres

#2: Types of Protected Land

- Natural Areas
- Conservation Development Zone
- Greenways

#3: Resource Protection Tools

- Buffers & Barriers
- Land Use Intensity & Location
- Restoration
- Policies
- Preservation
- Mitigation Toolbox

#4: Major Emphasis on Restoration

- Potential restoration of key areas of the Bailey's Lake complex (1,300 acres) would enhance the conditions for many species
- High habitat restoration potential due to proximity to ground water and lower elevation
- Edge protection and restoration
- Adjacent to other protected lands
- Buffers adjacent to the Natural Areas

#5: Green Design

- Conservation Development Zone with new sustainability policies
- Green Infrastructure Policies
- LEED Design Principles
- LEED-ND Design Principles

Social Sustainability Indicators

#1: Infill, Redevelopment & Contiguous Development

The 2007 Update to the Envision Utah Values Study found that people prefer future growth within existing communities. When confronted with increased density in existing communities, people prefer new centers.

- The Northwest Quadrant is the Wasatch Front's largest infill opportunity.
- The Northwest Quadrant is Salt Lake City's largest redevelopment and reuse of under-utilized industrial lands.
- Reuse of brownfield sites associated with landfills

#2: Ideal Neighborhoods

Neighborhoods meet the 2007 Envision Utah Study's Ideal Community:

- A mix of moderate multi-family & single-family home types
- A mix of ages & family stages
- Public bus, TRAX & rail options nearby homes with a variety of yard sizes
- 3,000 acres of active open space, public parks & gardens, recreational fields, playgrounds, nature preserves & 20 miles of trails nearby

#3: Access to Transit

- 11,100 existing jobs within walking distance of proposed transit corridors, not including 15,000 jobs at the Salt Lake City Airport
- Estimated 38,000 additional jobs and 14,000 households within walking distance of proposed transit corridors
- Three dedicated transit lines will serve this area including the Mountain View Corridor, the Airport TRAX Extension, and the West Bench Transit Corridor, as well as an internal local system

#4: Trails

- Over 20 miles of on and off-street trails

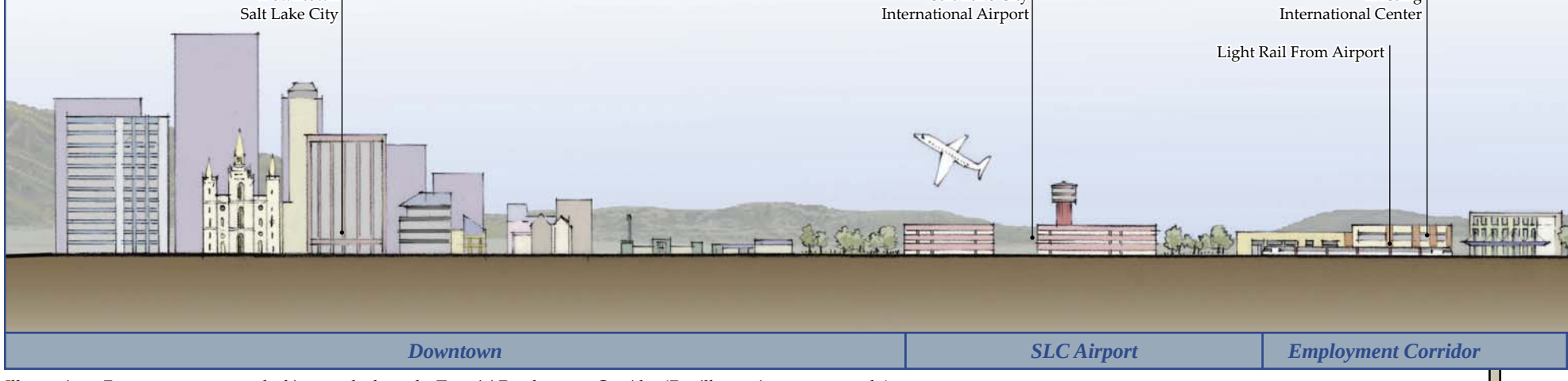


Illustration - East to west transect, looking south along the Transit/ Employment Corridor (For illustrative purposes only)

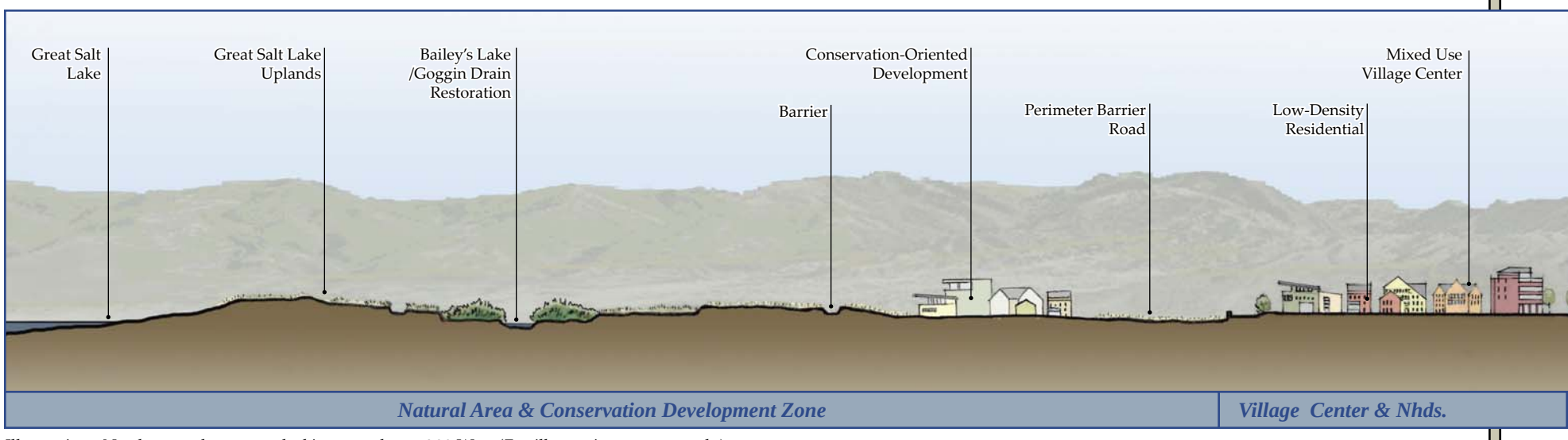
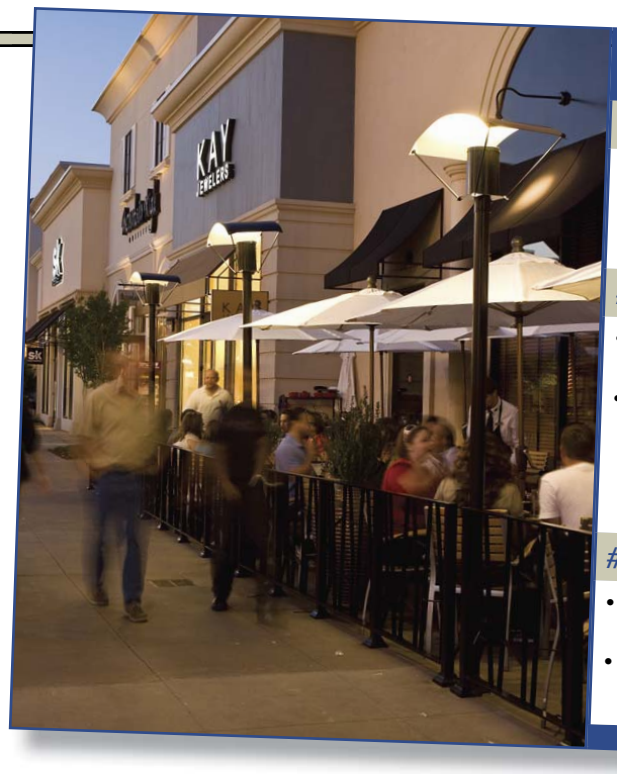


Illustration - North to south transect, looking east along 7200 West (For illustrative purposes only)



Economic Sustainability Indicators

#1: Jobs/ Housing Balance

- *The existing jobs to housing ratio is 1 to 1,500*
- *The proposed jobs to housing ratio is 1 to 3*

#2: Job Creation

- *Over 25,000 households will stimulate employment growth*
- *The Northwest Quadrant has significant potential to add jobs and housing; some of which might otherwise locate outside the City and County*
- *Expand Salt Lake City's industrial base:*
  - *60% of proposed land uses are employment or industrial*
  - *Intensification of under-utilized industrial areas*
  - *Job capacity doubled within and adjacent to the Northwest Quadrant, from 30,000 to 60,000 jobs*

#3: Centers

- *Compared to other cities of its size, Salt Lake City needs four additional centers*
- *Downtown will grow independent of other center growth*
- *Connected to Downtown & other areas*
- *Addition of two larger mixed-use centers*

Goals, Guiding Principles & Policies

Achieving the Vision for the Northwest Quadrant requires clear, attainable goals that address the central issues facing the development area and the City as a whole. This Plan is a primary tool for guiding the future development of the community.

To achieve a balanced development approach, this Master Plan contains policies on character and design; land use; open space and the natural environment; business and economics; community services; neighborhood vitality; and transportation. While its focus is on shaping the physical form of the Northwest Quadrant area, it also includes policies on quality of life and regional growth and development.

Goals, guiding principles, policies and illustrations, applied to each of these components, help translate the overall Vision for the Northwest Quadrant into a more substantive form. Together, these goals, guiding principles, policies, and illustrations help describe the intended look and feel of the Northwest Quadrant. They should be reviewed in tandem with applicable ordinances, which are yet to be developed, to provide additional information for defining the Plan's elements.

A **"goal"** (presented in blue text) identifies components of the Vision and defines what is intended to be accomplished. A goal is broad and is not specifically measurable, but provides a tangible direction.

A **"guiding principle"** identifies a measurable component of the goal statements and may be used to differentiate specific topic areas within the broader goal statement. Each element includes principles and policies at a community-wide level and (where appropriate) additional guiding principles and policies that directly relate to specific sub-areas of the Plan.

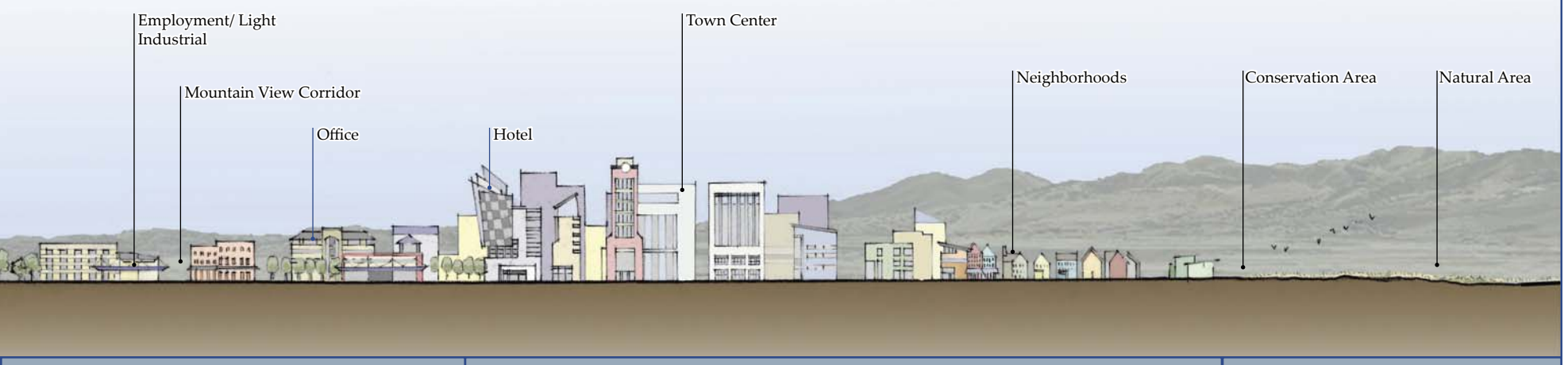
A **"policy"** is defined as a definite course or method of action intended to guide future decisions. Generally, the policies are the most referenced portion of this Northwest Quadrant Master Plan and are used to guide the day-to-day decision making of elected officials and administrative staff. In this Plan, each policy is named and identified by letters that designate the element of the Plan, where it is located, and numbers that indicate the sequence of guiding principles and policies within each section. In the Environmental Attributes Element, for instance, a policy might be called "EA-2.1." This would be "EA," an Environmental Attributes policy under guiding principle "2,". The "1" shows it is the first policy under that guiding principle.

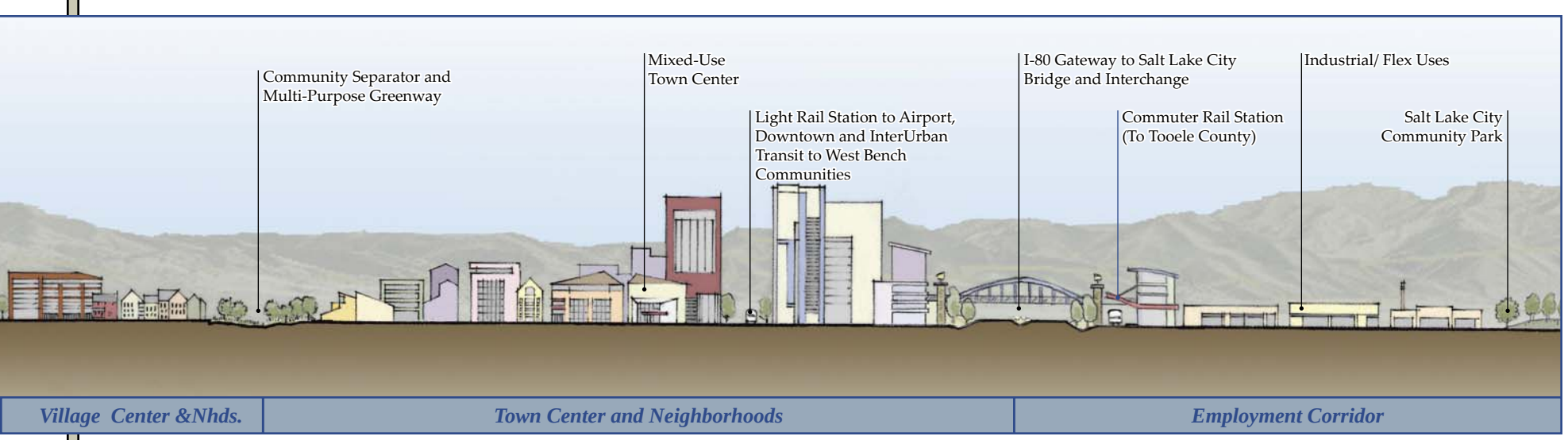
An **"illustration"** can accompany a policy to clarify its intent. Illustrations can occur as artistic renderings, cross-sections, reference tables, maps, etc. Illustrations are included solely to aid in understanding the depth and complexity of this Northwest Quadrant Master Plan. These graphic embellishments are typically described with terms such as "illustrative," "concept," or "example" to emphasize that several approaches could be applied to achieve a specific policy. Illustrations are called out as "Figure," followed by the element acronym for ease in referencing (i.e., Figure EA-2.3 illustrates Policy 2.3. in the Environmental Attributes Element).

Goals, guiding principles, and policies are organized into the Plan's eight elements:

- Environmental Attributes (EA)
- Green Design (GD)
- Neighborhoods (NH)
- Economic Development (ED)
- Multi-Modal Transportation (MT)
- Parks, Trails & Recreation (PT)
- Cultural & Landscape Resources (CLR)
- Public Services (PS)

Each of these elements is described below along with the associated goals, guiding principles, and policies. The bullets below the stated policy identify specific strategies for achieving the policy, and should be implemented where feasible. It is possible that proposed strategies under one policy may conflict with those under another policy, or with legal, reasonable financial, physical or other constraints. It is also possible that innovative and creative solutions may be identified for achieving the stated policy in different ways. Decision makers and planners should be flexible in reconciling any conflicts and in considering alternative or additional strategies, bearing in mind the primary goal of achieving the policy in a environmentally, socially and economical sustainable manner.





Environmental Attributes

"Protect ecological systems."

Guiding Principles

Guiding Principle EA-1. *Preserve and enhance natural ecological functions.*

Policy EA-1.1. Encourage the protection of our global flyway.

- Continue to work at local, regional, and international levels to protect ecosystems along flyways.
- Support a collaboration of mechanisms for flyway conservation, both regionally and globally.
- Improve knowledge of waterbird population dynamics at the global flyway scale.
- Discourage loss and degradation of high-functioning Great Salt Lake wetlands within the Northwest Quadrant.
- Seek to improve high-functioning wetlands through appropriate control of exotic vegetation species.

Policy EA-1.2. Contribute to the protection of the Great Salt Lake ecosystem.

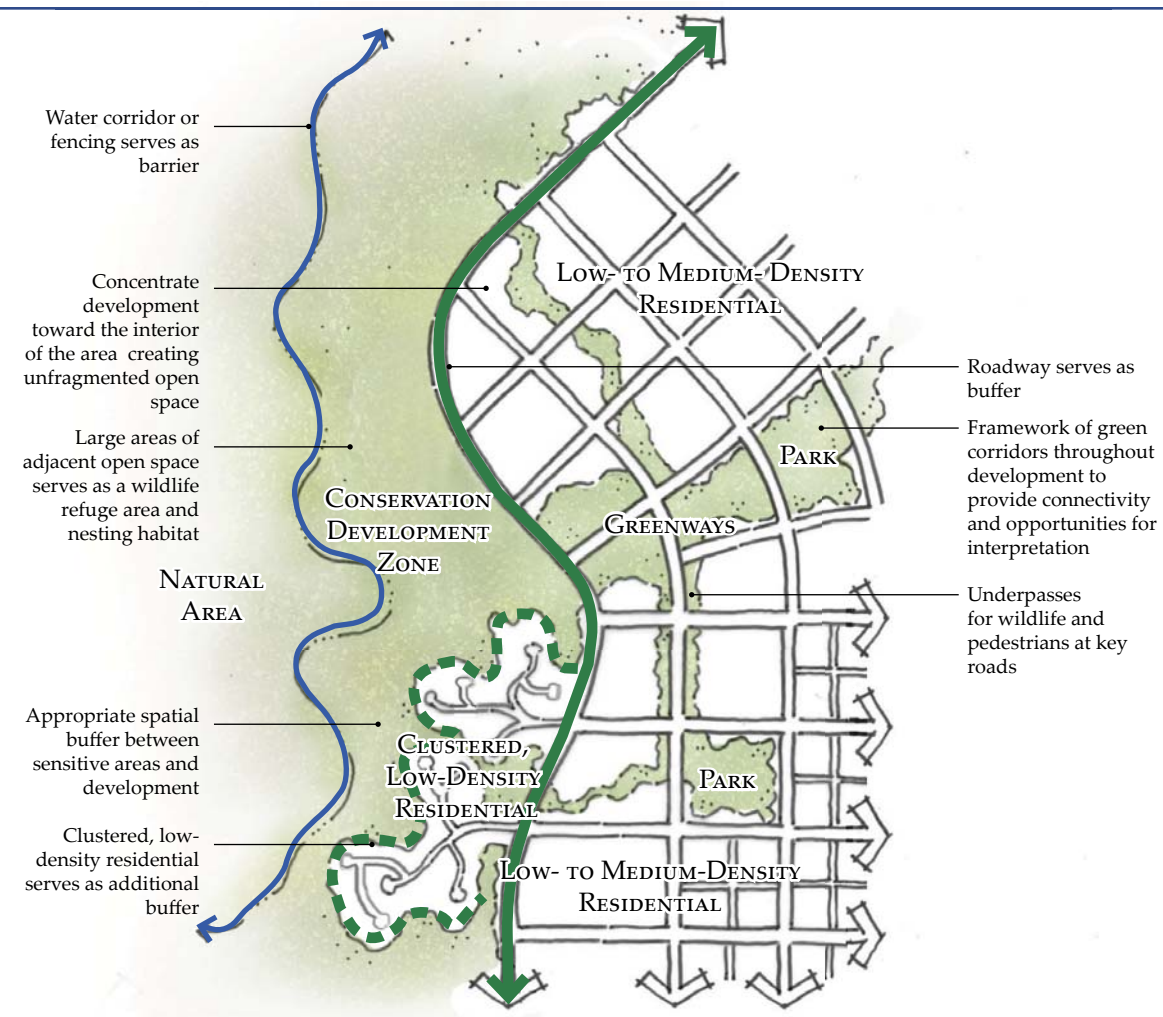
- Approach the protection of the Great Salt Lake ecosystem holistically through local and regional preservation measures.

Housing integrated with natural systems, and with immediate access to open space

- Recognize the importance of certain lands in the Northwest Quadrant to the Great Salt Lake ecosystem and as a north-south link in the global flyway.
- Seek to protect high-functioning wetlands near the Great Salt Lake, both within and adjacent to the Northwest Quadrant.
- Orient development away from high-functioning wetlands.
- Take measures to avoid contributing to further degradation of the water quality of the Great Salt Lake.
- Develop preservation priorities with conservation partners and property owners for lands to acquire and permanently protect. Coordinate with the Salt Lake City Open Space Lands Master Plan to include these sites.

Policy EA-1.3. Conserve and manage plant and animal communities to preserve biodiversity and ecosystem functions.

- Maintain biodiversity by conserving important, consolidated habitat and vegetation that support and are integrally connected with the Great Salt Lake ecosystem, including high-functioning water bodies, riparian corridors, wetlands, uplands, and playas.
- Protect landscapes that serve significant concentrations of wildlife and their nesting, breeding, brooding, feeding, and resting areas.
- Mitigate isolated habitat and/or species disturbance through the protection and enhancement of consolidated replacement habitat.
- Protect and buffer consolidated wetland areas associated with the Great Salt Lake to minimize habitat fragmentation.
- Encourage re-meandering of streams, where appropriate, to restore riparian and wetland functions.
- Encourage stream revegetation with appropriate native vegetation to support healthy riparian ecosystems.



Benefits:

- Preserves natural ecological functions
- Protects life and property from flooding
- Conserves native wildlife habitat, wetlands, and water bodies
- Shapes urban form
- Buffers incompatible uses
- Protects water quality
- Provides a framework for growth
- Creates a sense of place
- Protects global flyways
- Fosters public understanding and stewardship of the natural environment (refer to Green Design section)

Natural Area:
- Limited access
- Highest degree of naturalness and resource protection
- No development

Conservation Development Zone:
- Limited access with low to moderate use
- Moderate to high degree of naturalness and resource conservation
- Clustered low-density residential development
- Focused interpretive area

Greenways:
- Unrestricted access
- Natural areas integrated with manicured landscape
- Greenway protects critical resources and wildlife corridors
- Low-density residential development at edge
- High level of interpretation and facility development

Figure EA-2.1a. Illustration - Characteristics of Protected Lands

- Provide for wildlife movement corridors to facilitate movement across Interstate 80, other barriers, and appropriate greenways.
- Adopt a conservation plan for any species that may be listed under the Endangered Species Act, the State of Utah's sensitive species list, and the Wildlife Action Plan.

Policy EA-1.4. Protect water quality and availability.

- Adopt environmentally sensitive water quality control measures within the Northwest Quadrant to prevent the further degradation of existing waterways.
- Preserve water quality by protecting streams, reducing erosion, and managing stormwater within the Northwest Quadrant appropriately.
- Protect against potential threats to water quality, including sedimentation from flooding and pollutant risks from stormwater/sewer overload or malfunction.
- Utilize natural stormwater pollution reduction solutions, such as bioswales, wetlands, pervious surfaces, and other techniques to preserve water quality where appropriate.

Policy EA-1.5. Coordinate with the Salt Lake City Open Space Lands Program for the planning and management of preserved and/or restored lands.

- Include the National Audubon Society, the Inland Sea Shorebird Reserve, Nature Conservancy, Utah Waterfowl Association, Utah Open Lands, Legacy Preserve, Southshore Wetlands and Wildlife Management Inc., property owners, and land management agencies in discussions relating to long-term management of preserved areas.

Policy EA-1.6. Develop protection incentives, such as the Northwest Quadrant Buffer Toolbox (defined in Policy EA-3.1).

Guiding Principle EA-2. *Conserve and manage open space for a healthy natural environment and enhanced quality of life.*

Policy EA-2.1. Create a system of protected lands in the Northwest Quadrant. Refer to Table EA-2.1, Characteristics of Protected Lands, for characteristics of each system.

- **Natural Areas.** Natural Areas are areas for wildlife habitat, resource protection, and flood protection. Increased development and related human activities in these areas are discouraged to preserve the habitat qualities.
- **Conservation Development Zone.** The Conservation Development Zone is a transition to the Natural Area and augments the protection of natural resources. These areas will serve as a buffer, and in some cases as refuge and nesting areas for shorebird species. Development will occur within this area but will be based on the Northwest Quadrant Buffer Toolbox, which considers each Natural Area's sensitivity, suggested mitigation concepts, and development intensity.

- **Greenways.** Greenways allow residents and visitors to experience the natural environment; to view, touch, and feel the components of the natural system. Greenways will define neighborhoods and create a system that will serve as recreational trail systems, stormwater detention, and wildlife corridors.

Policy EA-2.2. Ensure long-term management of native vegetation, wildlife, habitats, water bodies, and wetlands.

- Encourage adequate funding and the creation of funding mechanisms to ensure the long-term management of protected areas.
- For areas protected by conservation easements, determine who will own the easement, manage and monitor the area, and ultimately be responsible for funding maintenance.

Guiding Principle EA-3. *Manage access to sensitive resources.*

Policy EA-3.1. Protect the Natural Areas through the use of buffers designed in accordance with the Buffer Toolbox.

- The Buffer Toolbox will provide the developer with the flexibility required to develop land adjacent to Natural Areas (see Policy EA-2.1, System of Protected Lands) within the Conservation Development Zone. These resource protection parameters are not "one size fits all" solutions. Developers can be flexible to react to market forces and be creative in developing solutions to protect, enhance, and create wetland and wildlife habitat. The size and nature of the buffers will be determined based on the resource type and land use intensity, and may be supported by additional study and review of specific sites. (See Buffer Toolbox at page 31).
- The developer can propose a land use type with an understanding that the proposed land use type and the presence of various resources will require different buffers. The range of buffer distances can be reduced by changing the nature of protection, such as using barriers and visual screens.
- The resulting buffer distances from the Natural Area and within the Conservation Development Zone will be determined based on factors identified in the Buffer Toolbox, including available data and demonstrable need, as well as input from Salt Lake City and other resource agencies and stakeholders.

Policy EA-3.2. Create buffers from high-functioning, consolidated nesting areas with large concentrations of wildlife sensitive to human and domestic animal intrusion.

- Utilize the Northwest Quadrant Buffer Toolbox to protect Natural Areas.
- Limit human activity in high-functioning, consolidated nesting areas within Natural Areas.
- Prohibit domestic animal activity in Natural Areas, excluding ranching and farming activities.

The Legacy Mitigation has been completed in the area; this Plan offers additional opportunities for mitigation

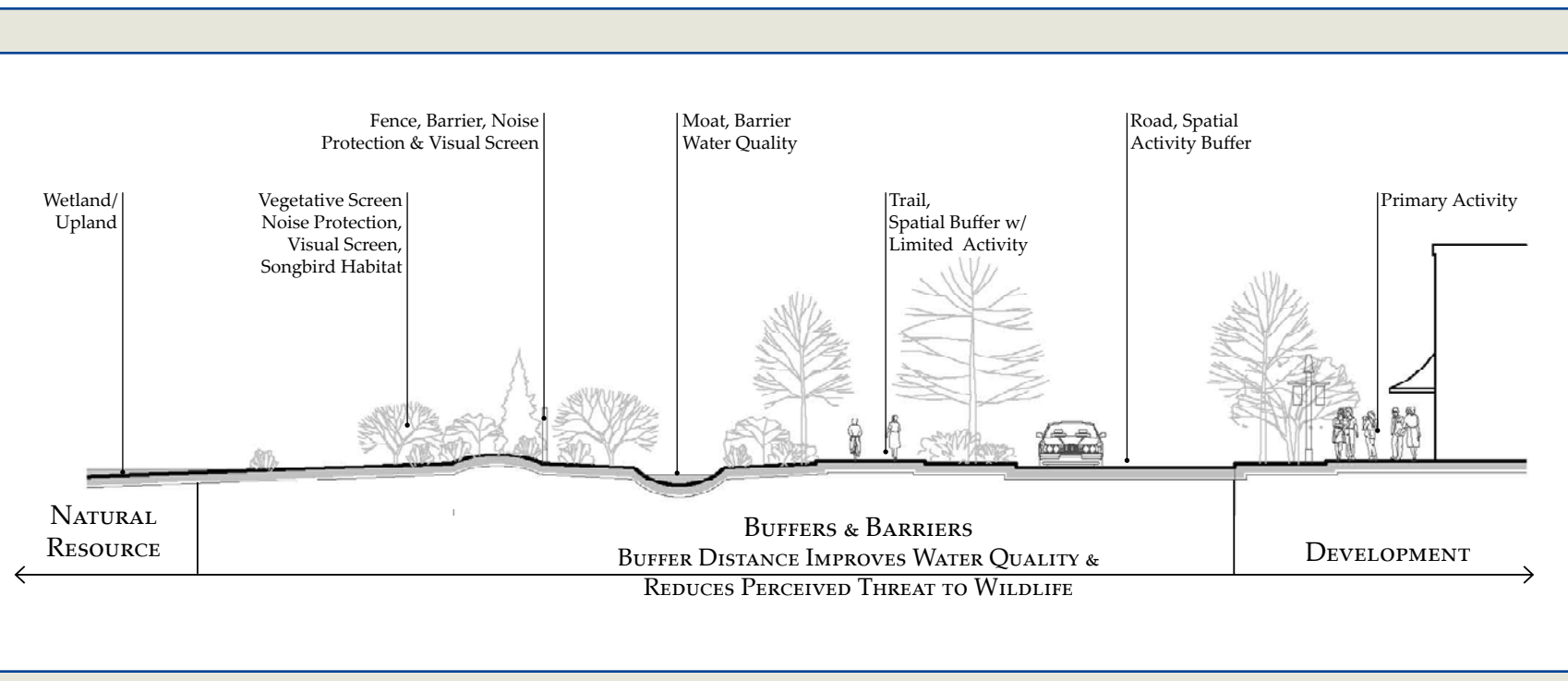


Figure EA-3.1. Resource Protection Buffer & Barrier - Distance Concept

Characteristics of Natural Areas	
Purpose	• Focus on Natural Resources • Protect Wildlife, Habitat, and Native Vegetation • Protect High Priority Areas • Restore and Enhance Natural Areas • Protect Bailey's Lake Complex • Protect the Great Salt Lake Ecosystem
100-Year Floodplain	A 100-year flood is the flood that statistically has a 1% chance of occurring each year. For land use planning purposes, the regulatory floodplain is usually viewed as all lands within reach of a 100-year flood. The Federal Emergency Management Agency (FEMA) produces floodplain maps, defining what's in and out of the 100-year (or "regulatory") floodplain in order to implement the National Flood Insurance Program. In addition, Salt Lake County Floodplain Hazard Regulations (Chapter 19.74) "prohibits building in flood ways but allows building in the floodplain with adherence to protection standards." Standards include anchoring, flood resistant construction materials, design of utilities to minimize infiltration of floodwaters, residential construction with lowest floor elevated to a minimum of one foot above the base flood elevation, and flood-proofing for nonresidential development below one foot above the base flood level. The 100-year floodplain is shown to occur along much of the northern portion of the Northwest Quadrant as well as extending into the northern portion of Goggin Drain. The Surplus Canal and the Great Salt Lake have not yet been mapped for FEMA flood insurance purposes. The Northwest Quadrant will need additional study to determine floodways and floodplains.
Below 4,217' Elevation	The water surface elevation of 4,212 feet above sea level represents the recorded historic high water elevation for the Great Salt Lake, which occurred in 1986 and 1987. During this period, pumping by the West Desert Pumping Station occurred to lower the lake's surface water elevation. Water levels also reached this elevation in 1866 and 1867. The historic low water elevation for the period of record (1845-present) was recorded in 1965 at an elevation nearly 20 feet lower at 4,191 feet above sea level. The current water surface elevation is approximately 4,196.5 feet. Wind and wave action may pose a hazard risk five feet or more above the historic high water elevation, making the hazard risk elevation 4,217 feet. Salt Lake City does not permit habitable development below elevation 4,217 feet. Up to two feet of fill may be allowed through the City's site development process. Fill within the Natural Areas should only be allowed for restoration and enhancement of Natural Areas and as needed for life and safety reasons with possible exceptions for substantially isolated areas.
Utah Sensitive Species	Species included on the Utah DNR's Utah Sensitive Species List.
Protected Lands	Protected lands include the lowland portions north of the Bailey's Lake Meadow Mitigation Bank and the Airport Wetland Mitigation Site.
High-Functioning Wetlands Systems	These areas include the highest functioning wetlands preliminarily identified through the Functional Assessment of Wetlands and Wildlife (SWCA, 2006). These wetland areas tend to be below the 4,217-foot elevation, within the recommended conservation area, near other sensitive wildlife habitat, and in closest proximity to the Great Salt Lake. Wetland types found in the Northwest Quadrant include: open water, emergent marsh, wet meadow, transitional wet meadow and playas. Various waterbirds, wading birds, shorebirds and several raptor species use these habitats for foraging. Much of the northern boundary of the Northwest Quadrant is located in an area identified by the Utah Division of Wildlife Resources as wetlands of state importance for a number of different animal and plant species. Additional study should be encouraged to identify the specific locations of high-functioning wetlands.
Bailey's Lake Complex	Bailey's Lake is a geological landform that originated during a period when prehistoric Jordan River ran through the area. For thousands of years the main channel of the river flowed south of Bailey's Lake. Alluvial materials deposited as the river slowed to enter Great Salt Lake built a large delta. When the river changed course and began flowing outside its previous channels and banks, it eroded unconsolidated Lake Bonneville sediments and cut deeply to create the incised meander channel which today is referred to as Bailey's Lake (SLR, 2007). The Jordan River continued to alter its course, moving to the east to its present location, and no longer courses through Bailey's Lake. The meander channel extends over three miles in length and consists of a series of large scallop-shaped river meanders. The distance from rim to rim exceeds half a mile in some areas. The interface between the upland and Bailey's Lake is sudden, abruptly dropping in elevation. A cross sectional view of the sloped sides of the meanders shows distances ranging from 65 – 300 feet between the upper edge of the meanders down to the floor of the oxbows. A dynamic system of wetlands occurs in and throughout the relatively level bottoms of the meanders. The Bailey's Lake incised meander channel is a relatively unique feature near the Great Salt Lake (SLR, 2007).
Areas Adjacent to the Inland Sea Shorebird Reserve	The Inland Sea Shorebird Reserve was created to mitigate loss of migratory bird wetland habitat resulting from the expansion by Kennecott Utah Copper Corporation (KUCC) of the tailings ponds associated with the Magna Smelter. KUCC worked with the Utah Division of Wildlife Resources, the US Fish and Wildlife Services, the Environmental Protection Agency, the Nature Conservancy, the National Audubon Society, and the US Army Corps of Engineers on developing the site, which was opened in 1997. The area was recognized as part of an Important Bird Area (IBA) and is now part of BirdLife International's IBA Program. The purpose of the program is to identify, monitor, and protect a global network of IBAs to conserve birds and other wildlife.
Recreation & Access	• Controlled Limited Access • No Domestic Pets • Controlled Human Activity
Protection Measure	• Acquisition and dedication to an accredited land trust or public agency • Conservation easements with an accredited land trust or public agency • Conservation easements
Characteristics of the Conservation Development Zone	
Purpose	• Conservation-Oriented Neighborhoods (see Policy NH-3.1) • Upland Preservation • Transition between densely populated areas and natural area, with lower density and conservation oriented housing • Ranching, Agriculture and Local Food Production • Interpretation and Education • Wildlife Refuge Area • Community Parks and golf courses that are certified Audubon Cooperative Sanctuaries or summarily qualified
Below 4,217' Elevation	Wind and wave action could pose a hazard risk up to the elevation 4,217 feet (based on historic high lake level of 4,212 feet). 4,217 feet is the elevation used by Salt Lake City as the development limit, although there is an allowance to add two feet of fill on land above 4,215 feet to bring the elevation up to 4,217 feet. The Sacramento District Corps of Engineers (Corps) reviews and requires a permit for all activities that would affect waters of the U.S. below elevation 4,217 feet adjacent to the Great Salt Lake. Fill of areas between the 4215 – 4217 elevations should only be permitted in areas approved for development.
Sensitive Wildlife Habitats	Areas that include significant concentrations of the following key wildlife habitats or species. Key habitats include: • Areas containing large concentrations of nesting colonial wading and waterbirds, which include Western Grebe, Black-Crowned Night-Heron, White- Faced Ibis, Forster's Tern, and Black Tern. These species are found in the areas of the Airport Wetland Mitigation Site, Goggin Drain and Bailey's Lake. • Areas containing large concentrations of nesting colonial shorebirds include nesting Black- Necked Stilts and American Avocets. These species are found in areas of mudflats, inundated playas, wet meadows, and partially vegetated playas in areas around the Goggin Drain and Bailey's Lake. • Concentrations of migrating shorebirds, which can be found in the areas of the Airport Wetland Mitigation Site, Goggin Drain and Bailey's Lake.
Areas Adjacent to the Bailey's Lake Complex	As described above under Characteristics of Natural Areas, Bailey's Lake is a geological landform that originated during a period when the prehistoric Jordan River ran through the area. Areas adjacent to the Bailey's Lake Complex should provide an appropriate buffer from intensive development, as noted in the 2007 SLR study.
Buffers & Location of Development	Determined by the Northwest Quadrant Buffer Toolbox.
Recreation & Access	• Managed access with seasonal trail closures as needed • Managed human activity
Protection Measure	For those portions that are not developed or developable, develop a conservation easement with an accredited land trust or public agency.
Characteristics of Greenways	
Purpose	• Multipurpose Corridor • Active Recreation • Interpretation • Parks/Trails • Community Gardens • Stormwater Detention/Utilities • Defines Community's Identity • Community/Neighborhood Separators • Green Infrastructure • Native Landscapes
Other Wetlands Systems	These areas include wetlands not classified as high-functioning according to the Functional Assessment of Wetlands and Wildlife (SWCA, 2006), and may include wetlands and significant playas within development areas.
Channels & Canals	Channels and canals in the Northwest Quadrant carry irrigation, storm, artesian well, and treated wastewater toward the Great Salt Lake. Channels and canals include the Surplus Canal, North Point Consolidated Canal, Bailey's Lake, Goggin Drain, West Branch, Brighton Drain, and Lee Creek. A series of connected paleo channels are present in the central portion of the Northwest Quadrant north of Interstate 80, and appear to have historically been connected to the Jordan River. Channels and canals are often associated with wetlands, which occur along their margins. These areas should include appropriate design to allow for water quality related functions, but may still allow trail systems.
Community/Neighborhoods Separators	In conjunction with other natural features such as channels and canals, community separators should be created between communities, and would also serve as view preservation corridors.
Parks, Commercial & Civic Use	Where practicable, parks, commercial, institutional, and civic areas should be linked by greenways.
Utility & Drainage Corridors	Where practicable, greenways should be located to coincide with natural drainage. When appropriate, drainage facilities and utilities should be placed within or adjacent to greenways.
Wildlife Corridors	Where practicable, corridors should be established to provide for wildlife movement between Natural Areas and Conservation Development Zone areas.
Recreation & Access	• Open Access • Encouraged Activity • Domestic Pets on leash; off-leash pets must be in designated and controlled areas only
Protection Measure	Owned and maintained through homeowners associations, government entities, or nonprofit groups.
Buffers	• Barriers recommended in Buffer Toolbox • Areas located within developed areas and adjacent to riparian, wetland, and natural pond areas • Locations separating neighborhoods or individual communities

Table EA-2.1. Characteristics of Protected Lands

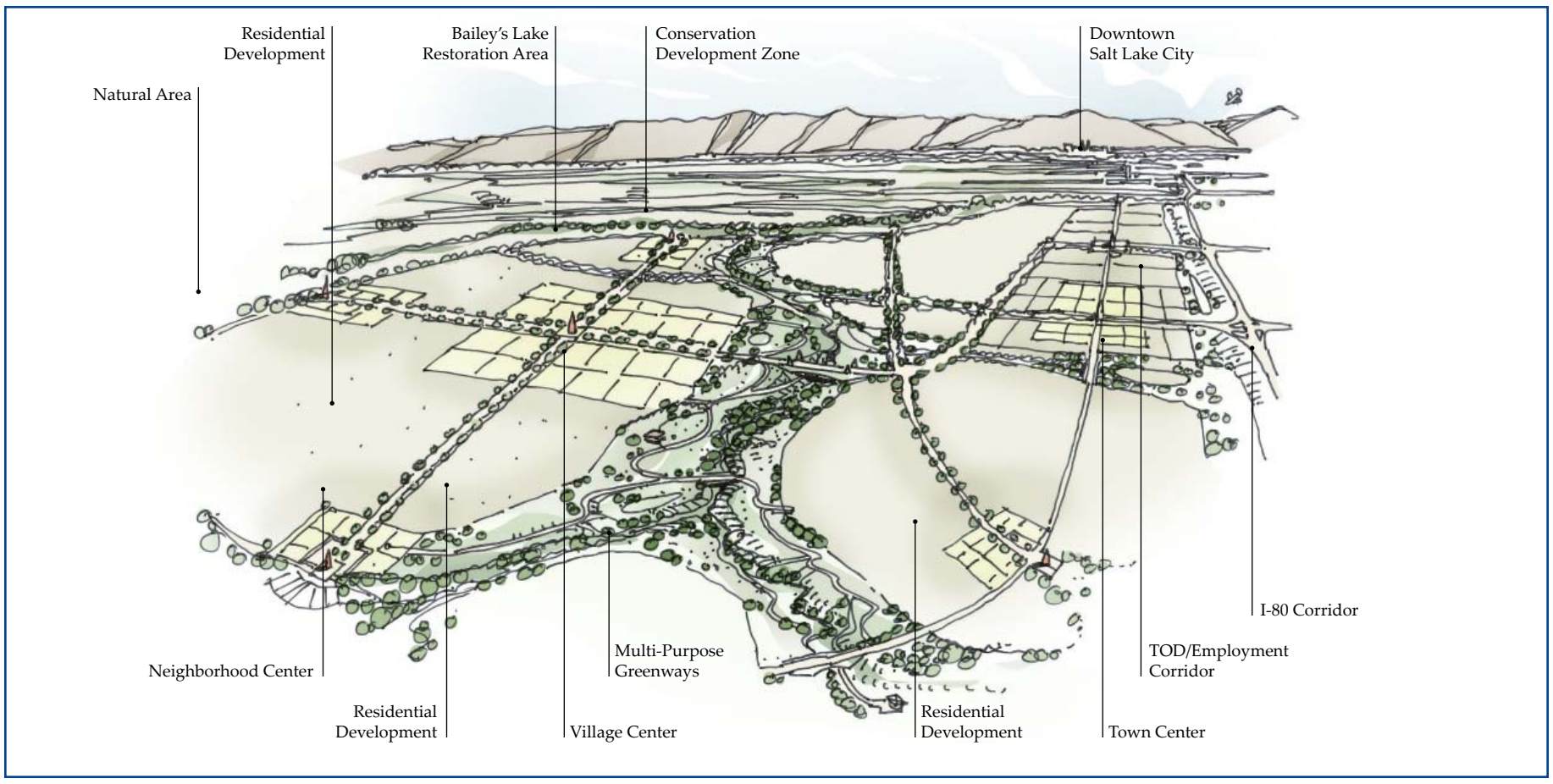


Figure EA-2.1b. Illustration - Greenways Defining Neighborhoods & Connecting Centers

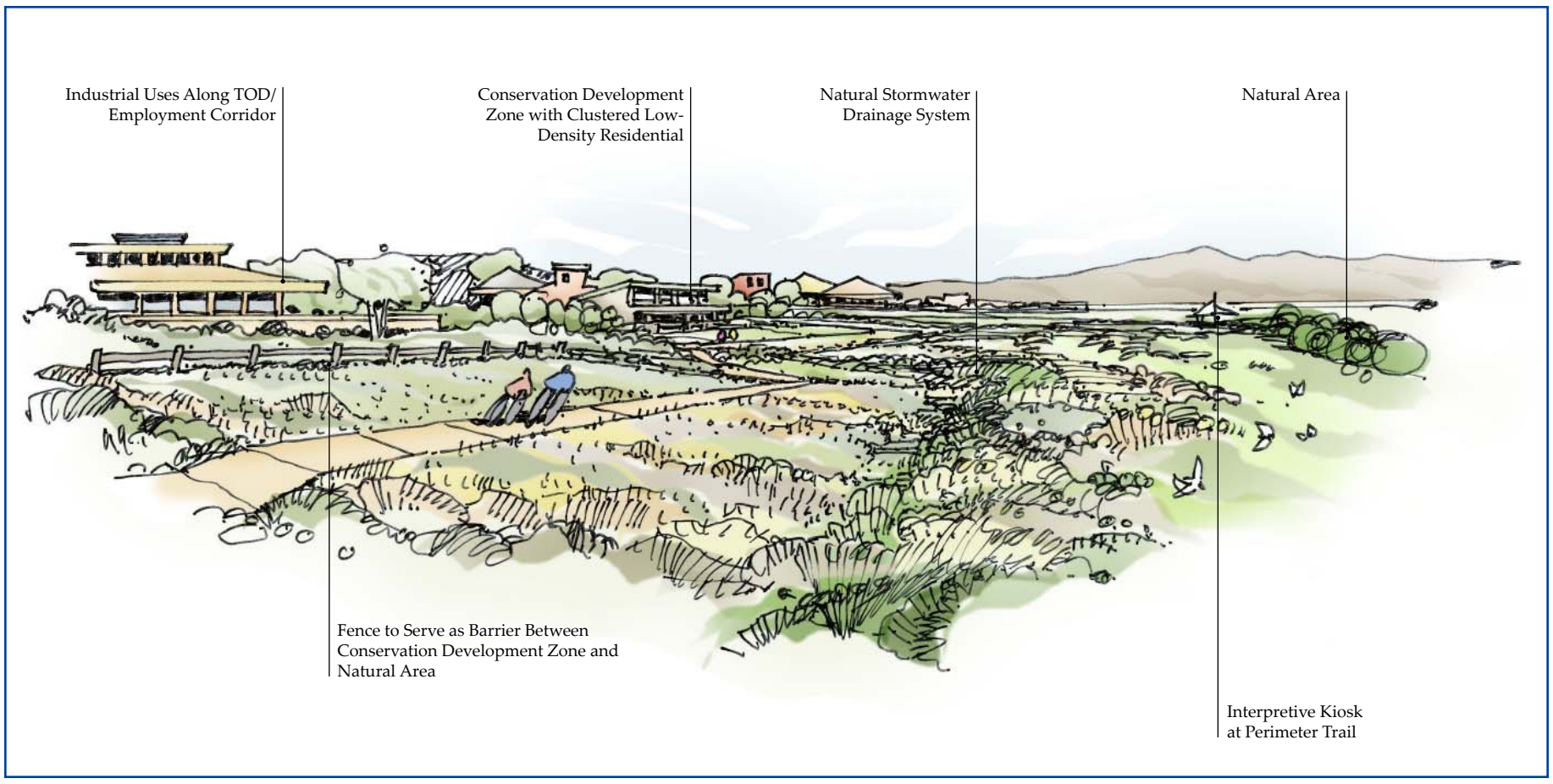


Figure EA-2.1c. Illustration - Conservation Development Zone

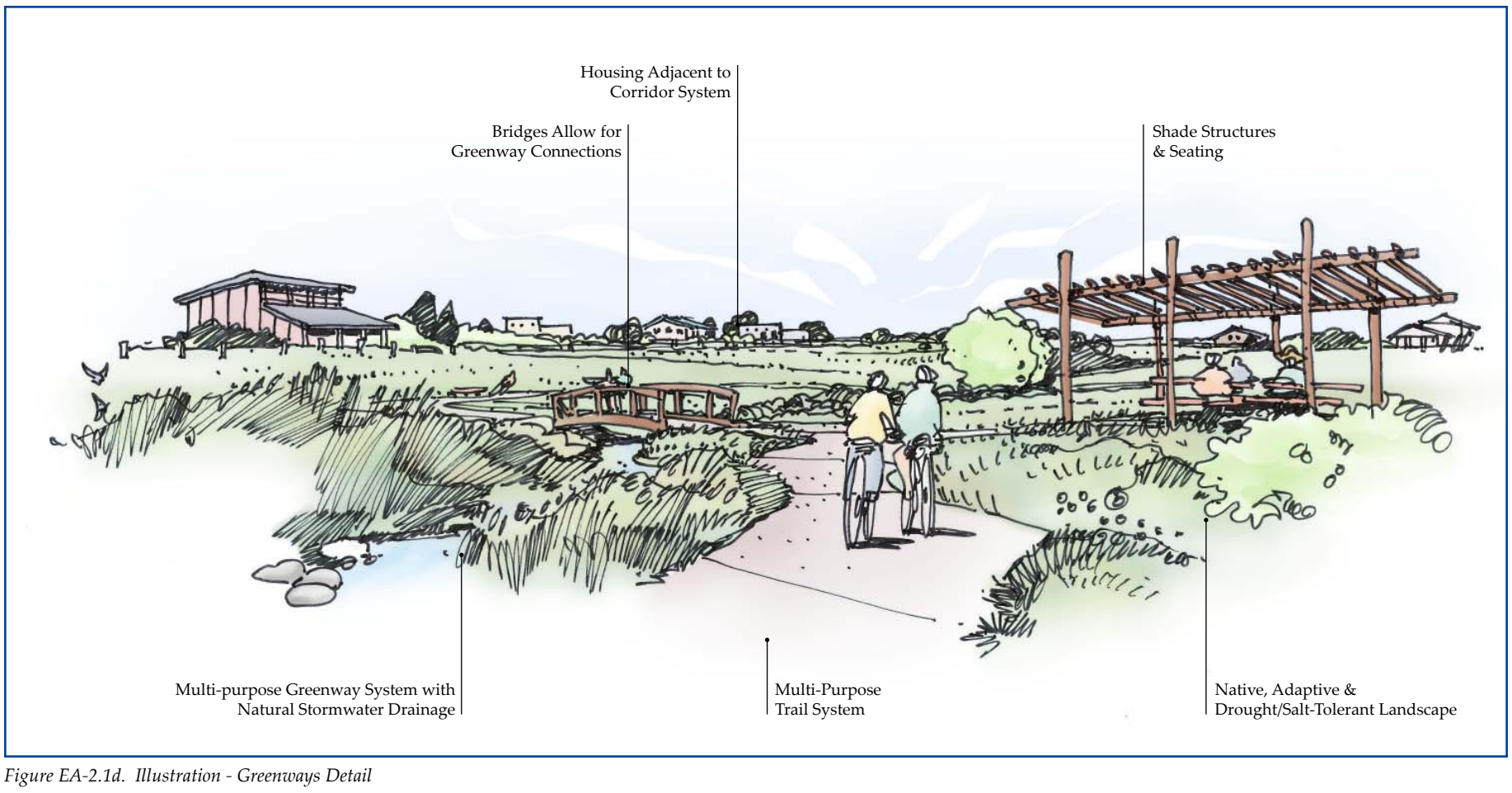


Figure EA-2.1d. Illustration - Greenways Detail

- Limit certain types of human development in the Conservation Development Zone.
- Promote human use of developed areas and greenways.
- Encourage and incentivize the consolidation and enhancement of habitats to maximize wildlife benefits, especially within the Natural Area.
- Mitigate isolated habitat and/or species disturbance through the protection and enhancement of consolidated replacement habitat.
- Utilize barriers such as natural features, open space, moats, berms, swales, roads, and fencing to protect sensitive areas.

Guiding Principle EA-4. *Protect human life and property by minimizing hazards.*

Policy EA-4.1. As required by City ordinance, regulate development within the 100-year floodplain as defined and mapped by the Federal Emergency Management Agency (FEMA) or state and local floodplain management.

Policy EA-4.2. Restrict occupied development below the elevation of 4,217 feet, consistent with City code.

Policy EA-4.3. Require developers to provide purchasers such disclosure statements of hazards and nuisances (i.e., unremediated brownfields, tailings containment, odor, insects, and noise due to the Salt Lake International Airport, Duck Club, and industrial areas adjacencies) as may be required by law.

Guiding Principle EA-5. *Restore native habitats.*

Policy EA-5.1. Encourage the restoration of native habitats, water bodies, and wetlands. Use only native plants and control invasive species in preserved areas.

Policy EA-5.2. Encourage and incentivize the cleanup of brownfield sites and landfills.

Policy EA-5.3. Avoid disturbance or impacts to consolidated high-functioning wetlands or playa habitats. Any such impacts, and impacts to isolated or unconsolidated habitats and/or species, will be compensated by on-site or off-site acquisition or restoration of equal or greater amounts.

Policy EA-5.4. Encourage the restoration of the Bailey's Lake Complex.

- Restoration has the potential to benefit some categories of birds, including:
  - Any federally designated endangered and threatened species.
  - Utah State Sensitive Species List wildlife species of concern, including the bald eagle, American white pelican, and long-billed curlew.
  - Species listed under the Migratory Bird Treaty Act, including the American avocet, peregrine falcon, etc.
  - Species listed under the Bald and Golden Eagle Protection Act.
  - Nesting colonial wading and waterbirds, including the American white pelican, cormorant, grebe, heron, egret, gull, tern, and ibis.
  - Nesting colonial shorebirds, including the American avocet and stilt.
  - Concentrations of migratory shorebirds, including the American avocet, stilt, dowitcher, yellowlegs, sandpiper, and plover.
  - Concentrations of migratory waterfowl, including the green-winged teal, mallard, northern pintail, cinnamon teal, northern shoveler, gadwall, and American widgeon.
  - Concentrations of migratory wading birds, including the American white pelican, ibis, egret, and heron.
  - Guilds, including the snowy plover, migrating swallows, and peregrine falcon.
- Restoration activities could include:
  - Designation of the Bailey's Lake Complex and associated buffer as part of the Salt Lake City Open Space Lands Program.
  - Creation of a permanent conservation easement/ donation of lands to an accredited land conservation group, and/or the Salt Lake City Open Space Lands Program.
  - Restoration of areas inside the Bailey's Lake Complex.
  - Augmentation of water in key locations to improve wetland systems.
  - Management of invasive weeds.
  - Management of terrestrial species.
  - Protection of managed wetlands north of the Goggin Drain.
  - Creation of buffers.
  - Creation of an adaptive management plan, which would seek to include long-billed curlew protection within the Bailey's Lake Complex and associated buffers.

The Shorelands Preserve offers hiking, interpretational and wildlife viewing opportunities north of the Northwest Quadrant

Guiding Principle EA-6. *Foster public understanding and stewardship of the natural environment.*

Policy EA-6.1. Create a sense of place by preserving areas near the Great Salt Lake, allowing the public to view and participate in the enjoyment of natural resources.

Policy EA-6.2. Develop opportunities to encounter the natural environment in order to appreciate and learn from it.

- Encourage the development of education curricula and programs focused on the Great Salt Lake.
- Encourage the development of interpretive features, such as signage, trails, boardwalks, and viewing towers.
- Highlight the Lee Creek Area as a destination for people to come see the Great Salt Lake in Salt Lake County

Bailey's Lake Restoration Collaborative Solutions

Shortly after the master planning process was initiated landowners and other interested stakeholders began exploring ways to restore Bailey's Lake area to a more natural condition. The ideas included controlling invasive weed species and reestablishing natural hydrology. After considering potential restoration opportunities, Suburban Land Reserve initiated steps with these same stakeholders (many of whom had come from the Advisory and Technical Committees of the master plan) to evaluate a buffer that may protect this resource. In August of 2007, a study was completed which evaluated the species that would benefit from a restored Bailey's Lake and what was needed to protect their habitats. This coalition working together to study the area eventually proposed an appropriate buffer that was much greater than anything required in the current development code. In some places, the buffer (shown in pink on the map) extends for up to 300 feet, including from the toe of the slope of Bailey's Lake and through all peninsulas to preserve upland habitat for nesting upland and aquatic species. The buffer allows the first 30 feet to be used for drainage, transitioning to berms, solid panel fencing and vegetation for improved visual screening. At the southern end of the lake system, the buffer is reduced to 50 feet, due to the size of the area and the lower naturally functioning existing conditions. These are the types of benefits and solutions that can be achieved if the stakeholders in the area, with their varying interests, cooperate to incorporate sound developmental principals in a way that protects (and in cases like this) improves the environmental conditions of the area.

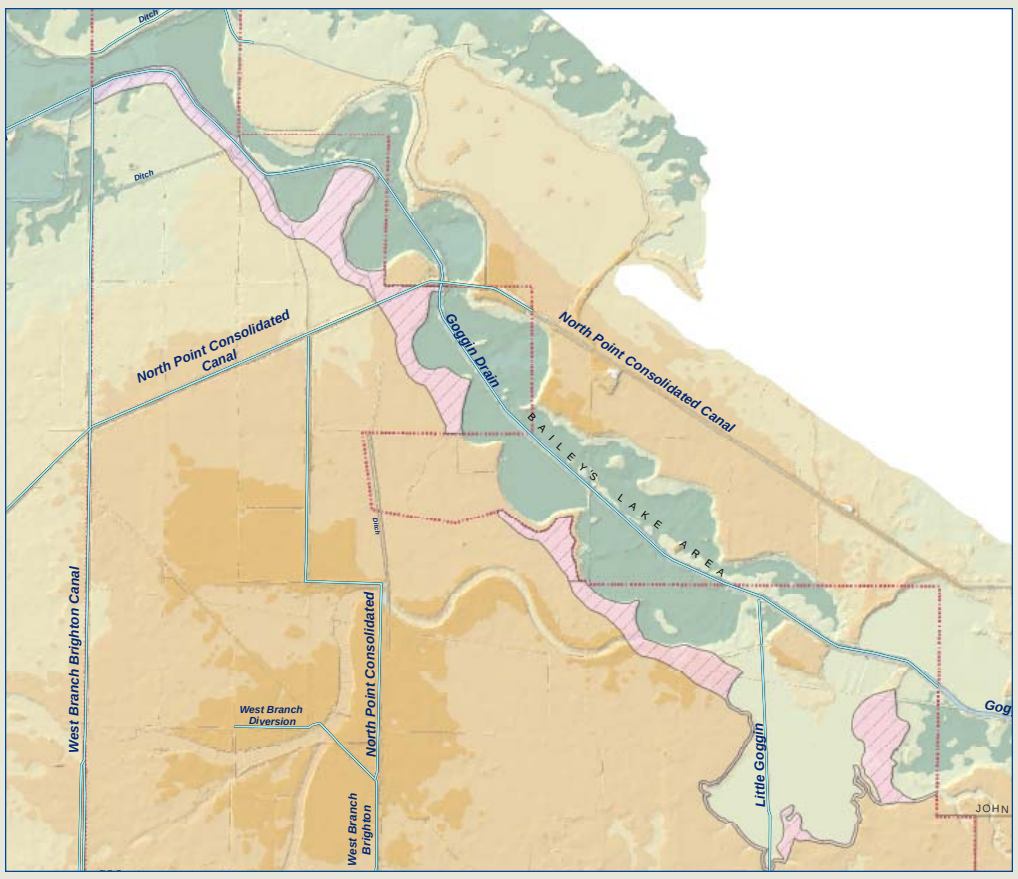


Figure EA-5.4. Bailey's Lake Restoration Area

Green Design

"Conserve water and energy resources, enhance air and water quality, and protect natural environments."

Guiding Principles

Guiding Principle GD-1. *Develop the Northwest Quadrant in an environmentally sustainable manner.*

Policy GD-1.1. Establish sustainable development principles and best management practices to set the standard of development for Salt Lake City and the Great Salt Lake ecosystem.

- Encourage LEED design principles, including LEED Neighborhood Development and LEED Site Design, along with consideration of the developing Sustainable Sites Initiative.
- Establish best practices for construction to protect conservation areas and buffers from damage during the construction and development process.
- In connection with other considerations, reduce light pollution in sensitive nighttime environments by utilizing full or near full cutoff luminaries, low-reflectance surfaces and low-angle spotlights, consistent with City CRT objectives and requirements.
- Seek to utilize mosquito abatement technologies that reduce impacts on natural systems and wildlife.
- Prohibit introduction of invasive plant species.
- Seek to utilize integrated pest management where appropriate.
- Seek to control wildlife and domestic pet conflicts with environmental design or policies that could prevent domestic animals, pests (such as raccoons, skunk, and fox), and edge species from disturbing conservation areas. Domestic pets should not be allowed outside of developed areas within Conservation Areas except when on leash.
- Engage in active weed management, and invasive terrestrial species management.
- Build infrastructure to minimize impacts on wildlife and natural systems, such as natural stormwater retention and dispersion, underground power lines and wildlife crossings under roads where appropriate.

Guiding Principle GD-2. *Address future considerations for climate change.*

Policy GD 2.1. Attempt to reduce the carbon footprint of those who would live or work in the Northwest Quadrant through low impact development (LID) and green design techniques.

Guiding Principle GD-3. *Utilize innovative design to conserve land, water and energy.*

Policy GD-3.1. Encourage compact neighborhoods that promote less auto-dependence, more green space conservation, and better water efficiency and protection, while allowing for a variety of housing types, styles, sizes, and designs.

Policy GD-3.2. Encourage the use of alternative methods of transportation by providing ample bicycle storage facilities, convenient access to public transportation, and preferred parking for carpools and low/alternative fuel vehicles.

Policy GD-3.3. Encourage environmentally friendly landscaping and irrigation practices.

- Use appropriate landscaping for the area that does not require extensive modifications to the native soils.
- Implement green infrastructure options that can enhance tree health and permanence.
- Use native, adaptive, and drought/ salt-tolerant vegetation for landscaping.
- Minimize irrigated landscape areas and utilize naturalized swales.
- Encourage the maintaining of native soils and native landscaping in large public areas.
- Reduce heat islands to minimize impact on microclimate and human and wildlife habitat through the following mechanisms where feasible:
  - Shade hardscape.
  - Use light-colored roofing.
  - Install vegetated roofs, i.e., green roofs.
  - Use light-colored paving materials.
  - Minimize the size of parking lots.
  - Reduce street widths.

Policy GD-3.4. Develop a drought mitigation, conservation plan that will establish a level of preparedness for prolonged periods of less than average rainfall.

Use of electric vehicles

Native, xeric plantings and porous paving

Vegetated roof

- Encourage improved landscape performance in periods of water shortage to lessen initial infrastructure cost.
- Generate and implement a conservation plan with specific targets for water use.

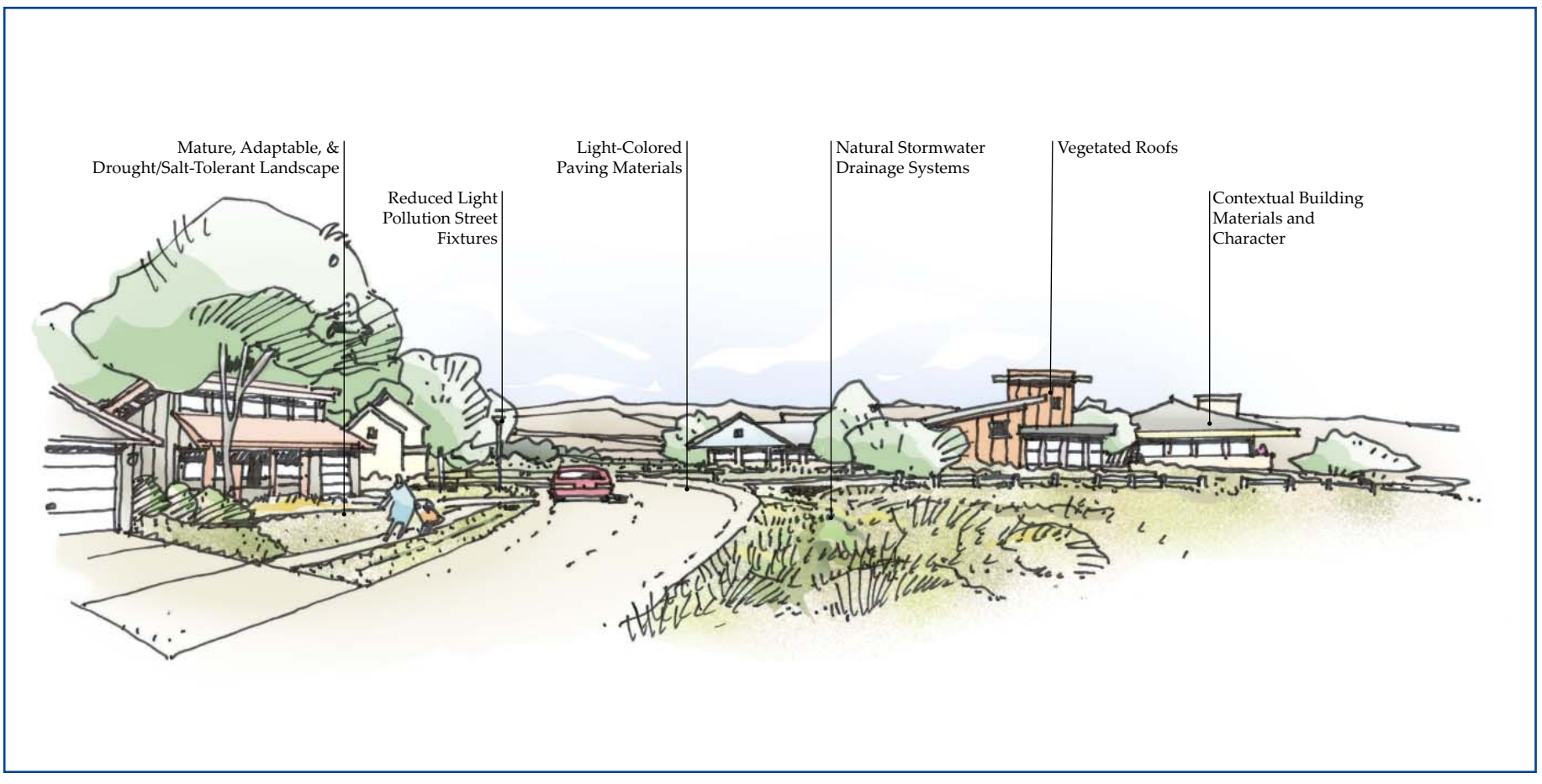


Figure GD-1.1a. Green Design Strategies

- Require property developers in all stages of development to implement and use the conservation plan.
- Devise strategies for decreased water use during drought periods.

Guiding Principle GD-4. *Encourage new development to utilize current environmentally friendly materials, technology and construction practices.*

Policy GD-4.1. Provide incentives for development that utilize on-site renewable energy sources, such as solar, wind, biomass and low-impact hydro or geothermal energy.

Policy GD-4.2. Encourage development to include water efficient design.

- Encourage the reuse of gray water for nonpotable purposes.
- Encourage high efficiency irrigation systems.

Guiding Principle GD-5. *Utilize green building technologies and practices.*

Policy GD-5.1. Encourage the design and construction of buildings to meet LEED-NC Gold standards.

- Encourage the incorporation of energy reduction strategies:
  - Orient buildings parallel to or within 15° of the east-west axis.
  - Use natural ventilation in buildings.
  - Use natural daylighting in buildings.
  - Use high efficiency lighting control systems.
  - Use high efficiency thermal control systems.
  - Allow solar panels.
  - Allow wind turbines.
- Encourage the incorporation of water conservation measures:
  - Install high efficiency irrigation systems.
  - Enforce responsive and efficient irrigation system management.
  - Utilize low water use plumbing fixtures and appliances to minimize interior water demand.
  - Utilize recycled wastewater or recycled gray water for irrigation uses.
  - Explore opportunities to construct a secondary water system (purple pipe system) for irrigation purposes using a secondary water source.
- Encourage the use of recycled, salvaged, rapidly renewable, and locally produced materials.
- Encourage the use of sealants, finishes, paints, and flooring that have zero or low volatile organic compound (VOC) content.
- Encourage builders to divert significant amounts of their waste (>50 percent) away from landfills through reuse or recycling.

Policy GD-5.2. Design residential buildings to Energy Star® Qualified Home standards.

Guiding Principle GD-6. *Implement a comprehensive stormwater management plan to reduce flooding, erosion and pollutant loads in streams and water bodies.*

Policy GD-6.1. Encourage stormwater management that infiltrates, reuses, or evaporates or transpires rainfall, decreasing runoff volume.

Policy GD-6.2. Implement stormwater management infrastructure on local and neighborhood levels to minimize the size of large-scale collective detention and retention basins.

Policy GD-6.3. Incorporate greenways (see Policy EA-2.1, System of Protected Lands) throughout new developments to serve as multipurpose corridors.

- Incorporate appropriate recreation areas, stormwater management, and detention and utility infrastructure corridors within greenway systems.
- Incorporate appropriate transportation systems, trails, and bike paths within large pipeline, power utility, and stormwater management corridors.
- Utilize small stormwater detention areas as park space.

Policy GD-6.4. Use detention and drainage areas to intercept and filter stormwater.

Policy GD-6.5. Use water reuse systems to maximize water efficiency in the community and to decrease the size of supply and conveyance infrastructure.

Policy GD-6.6. Utilize bioswales in place of traditional curb and gutter systems to manage surface runoff.

Guiding Principle GD-7. *Implement and manage a waste control system, incorporating recycling and minimizing other negative impacts to area.*

Guiding Principle GD-8. *Provide housing in proximity to jobs to reduce travel distances, congestion, air pollution, and greenhouse gases.*

Incorporating alternative energy sources

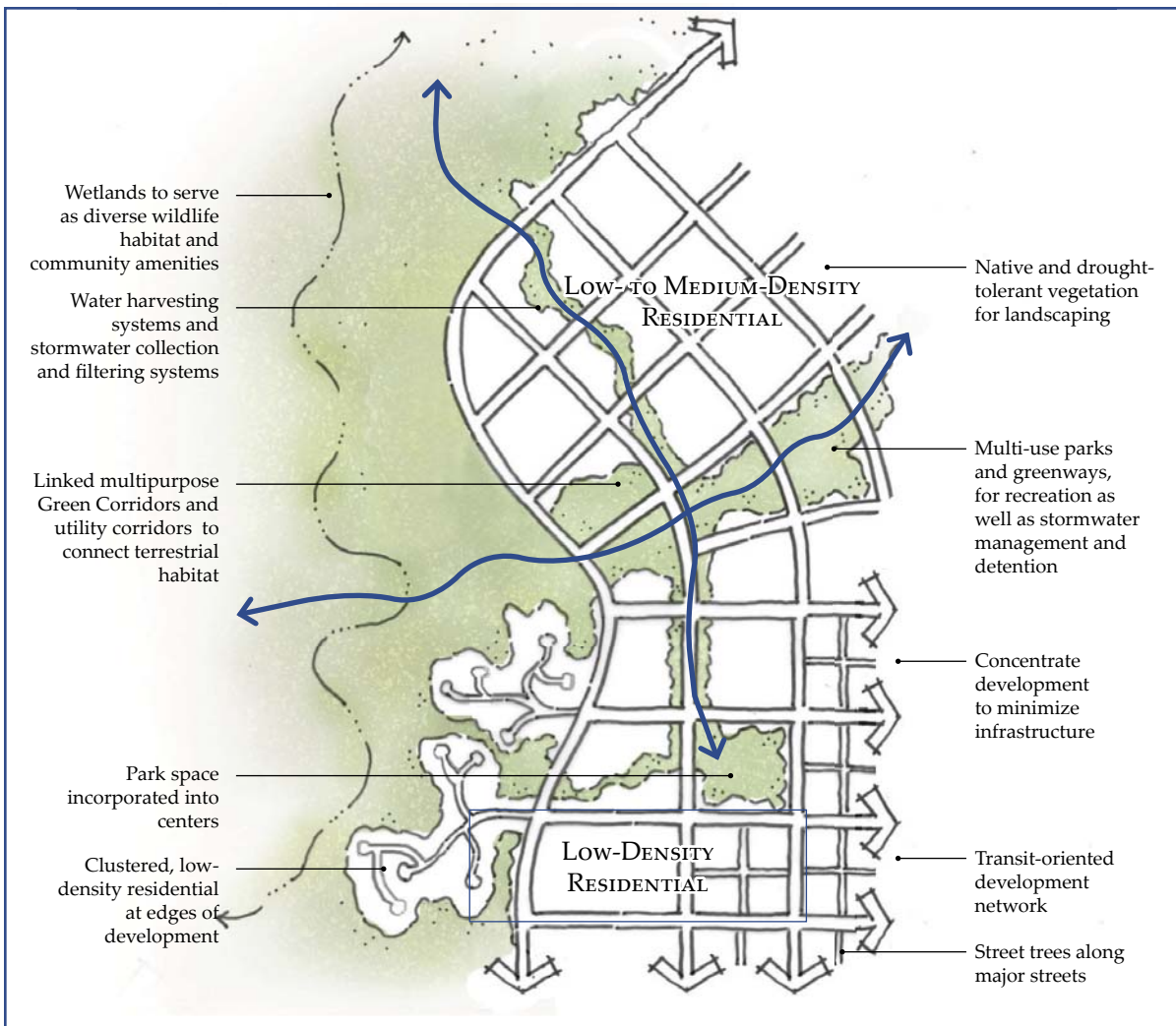
Incorporating solar panels

Policy GD-8.1. Seek to balance the significant employment that currently exists in the area by adding substantial housing of a variety of sizes and price points to allow workers of various income levels to live near where they work.

Policy GD-8.2. Design mixed-use communities where people can travel to work, stores, or recreation by short auto trips, and where many people can walk or bike.

Policy GD-8.3. Develop sufficient housing in the Northwest Quadrant to allow a community close to downtown Salt Lake City that utilizes transit and existing freeway capacity to travel to downtown Salt Lake City, rather than having such housing being developed in more distant locations within and outside of the Salt Lake Valley.

Policy GD-8.4. Extend multi-modal transportation network to maximize accessibility from residences, jobs, and commercial establishments.



Benefits:

- Reduces air, water and land pollution
- Reduces energy consumption and cost
- Reduces environmental impacts from energy production and consumption
- Reduces use of nonrenewable resources
- Reduces waste
- Creates more comfortable, healthy environments
- Reduces carbon footprint

Figure GD-1.1b. Green Design Considerations

NEIGHBORHOODS

"Create residential communities that allow residents to live, work and play in their neighborhoods, and foster a sense of community."

Guiding Principles

GUIDING PRINCIPLE NH-1. *CREATE VIBRANT, SAFE, HIGHLY CONNECTED AND WALKABLE NEIGHBORHOODS.*

Policy NH-1.1. Provide appealing and comfortable pedestrian street environments to promote pedestrian activity.

- Provide direct and safe connections for pedestrians and bicyclists to local destinations and centers.
- Orient building entries to public spaces, such as streets, squares, parks, or plazas.
- Incorporate traffic control measures, such as traffic signals, where warranted.
- Minimize off-street parking lots.
- Provide bicycle and/or carpool parking spaces.

Policy NH-1.2. Increase walkability by creating compact communities; attractive destinations; and convenient, direct routes.

- Develop a street network that supports a range of transportation alternatives, such as low-speed, highly connected streets that include bike lanes and sidewalks.
- Locate the majority of residential areas within walking distance of a Neighborhood Center (1/4 to 1/2 mile).
- Reduce the community's overall vehicle miles traveled by providing pedestrian access to a variety of services.
- Promote public health through physical activity by facilitating walking to school, employment, shopping, and other destinations with a highly connected trail and on-street bike route network.
- Provide a variety of recreational uses close to work and home to encourage walking, physical activity, and time spent outdoors.
- Locate the majority of civic spaces, pocket parks, greens, plazas, or squares within 1/4 mile of residential areas and businesses.
- Locate neighborhood recreation facilities within 1/4 mile of the majority of residential areas and centers.
- Locate multi-use trails within 1/4 mile of the majority of residential areas and centers.
- Locate community recreation facilities (e.g., general playfields, soccer, baseball, basketball, and other sports fields) within 1/2-mile walking distance of the majority of residential areas and centers.

Policy NH-1.3. Provide access to transit for the majority of neighborhood types through a transit loop that connects Neighborhood Centers with the Town Center.

GUIDING PRINCIPLE NH-2. *ENCOURAGE SOCIAL INTERACTION AND SUPPORT FAMILY AND COMMUNITY RELATIONSHIPS.*

Policy NH-2.1. Encourage community participation in the design and planning process.

Policy NH-2.2. Design communities to create life-sustaining environments, providing residents with recreational and healthy living opportunities.

- Create neighborhood areas that provide attractive public spaces, such as civic spaces, community centers, parks, plazas, community gardens, and natural greenways.
- Emphasize walk-to destinations, including schools, parks, restaurants, and retail throughout the community.
- Promote community-based and local food production to minimize the environmental impacts from transporting food long distances, and to increase direct access to fresh foods.
- Encourage appropriate interaction with and appreciation of the natural environment.
- Strengthen land use connections to greenways and amenities through building orientation.

GUIDING PRINCIPLE NH-3. *CREATE NEIGHBORHOODS THAT INCLUDE RESIDENTS OF ALL AGES, ECONOMIC LEVELS AND LIFESTYLES.*

Policy NH-3.1. Include high quality housing options across price points, from smaller, high density attached units, live-work units and accessory dwelling units to more traditional single family homes, consistent with market demand.

Policy NH-3.2. Enable a wide spectrum of people, regardless of age or ability, to more easily participate in their community life by increasing the proportion of areas that are usable by people of diverse abilities.

Housing Type	Primary Product Types & Amenities	Average Density	Location
Low Density Mixed-Use Neighborhood	Single Family Detached, Patio Homes, Townhomes, Accessory Dwelling Units, Neighborhood Commercial / Mixed Use, Parks, Elementary Schools, Transit Access	5 - 8 Dwellings Units Per Acre (Gross)	Walking distance to Centers Walking distance to transit stops
Medium Density Mixed-Use Neighborhood & Neighbor-hood Center	Single Family Detached, Townhomes, Patio Homes, Accessory Dwelling Units, Live-Work Units, Multi-Family Units, Neighborhood Commercial, Community Commercial, Parks, Elementary Schools, Transit Access	8 - 15 Dwelling Units Per Acre (Gross)	Walking distance to Centers Adjacent to transit systems Adjacent to connectors
High Density Residential Mixed Use Neighborhood/ Village Center	Townhomes, Multi-Family Units, Live-Work Units, Community Commercial, Parks, Middle Schools, Transit Access	15 - 30 Dwelling Units Per Acre (Gross)	Within or adjacent to Centers Adjacent to transit systems Adjacent to arterials
TOD Residential Mixed Use Neighborhood/ Town Center	Multi-Family Units, Live-work Units, Mixed Use, Community Commercial, Parks, High Schools, Transit Access	20 - 50 Dwelling Units Per Acre (Gross)	Within Centers Adjacent to transit systems Adjacent to arterials
Conservation-Oriented Neighborhood	Low-to-Medium Density Residential clustered in appropriate locations with additional sustainable design criteria, (e.g., low level street lighting, no domestic pets off-leash in public areas, native plant materials, color palettes, preservation of wildlife corridors, etc.)	1 - 8 Dwelling Units Per Acre (Gross), with 30% or greater open space including buffers, and exclusive of Natural Areas.	Within Conservation Development Zone At edges of development to buffer Natural Areas Development zones based on Toolbox

Table NH-3.1a. Housing Options

Mixed-use, high-density development

Live/work units

Medium-density residential development around shared courtyard

Medium-density multi-family residential development

Medium-density single-family residential

Conservation-oriented development

Figure NH-3.1b. Residential Types

- For each residential unit type developed, design units to comply with the Fair Housing Amendments Act (FHAA) and Section 504 of the Rehabilitation Act (Rehabilitation Act), as applicable.
- Travel paths between residential units and other buildings, facilities, and rights-of-way shall comply with the accessible design provisions of the FHAA and Rehabilitation Act, as applicable.
- For any nonresidential areas, apply the accessible design provisions of the American with Disabilities Act (ADA) to facilities and rights-of-way.

Policy NH-3.3. Provide housing densities that complement alternative and public transportation. Mixed-use areas and activity centers near transit stations will likely include both rental and for-sale units; and may include a vertical mix of uses, where residential units are located above ground floor retail and office uses.

Policy NH-3.4. Provide for live-work opportunities in mixed-use areas near activity centers and transit stations.

Guiding Principle NH-4. *Encourage high quality construction and design of all new neighborhoods.*

Policy NH-4.1. Promote distinct community identity by incorporating quality architectural styles, landscapes, and details into residential units, especially those unique to the Great Salt Lake and Salt Lake City area.

- Incorporate landscapes that are compatible with groundwater and soil conditions of the Great Salt Lake area.
- Encourage variation in house models, lot width and depth, and block size and shape to avoid a monotonous streetscape and limit the appearance of standardized subdivisions.

Policy NH-4.2. Encourage green design construction techniques, particularly the standards of the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED™) principles.

Policy NH-4.3. Create community separators between communities to create a sense of arrival and identity and to highlight natural features. Community separators provide a noticeable distinction between large communities.

- Develop a hierarchy of gateways, signage, or other identifiers that reinforce the identity of the Northwest Quadrant.

Guiding Principle NH-5. *Integrate the natural and built environments.*

Policy NH-5.1. Concentrate development in unconstrained portions of the property.

- Locate conservation development and cluster development in the conservation zone.
- Utilize barriers, such as arterial roads, vegetated swales, fences, berms, signage, and other tools to encourage use away from the edge of the site.

Policy NH-5.2. Preserve existing critical ecological connections throughout the built environment (see Policy EA-2.1, System of Protected Lands), particularly along riparian corridors and in high-functioning wetland areas.

- Utilize bridges or underpasses in an effort to provide continuous greenway corridors (see Policy EA-2.1, System of Protected Lands) where streets bisect significant habitat areas.

Policy NH-5.3. Incorporate and emphasize the area's natural elements when making architectural and design choices to preserve the visual character of the area.

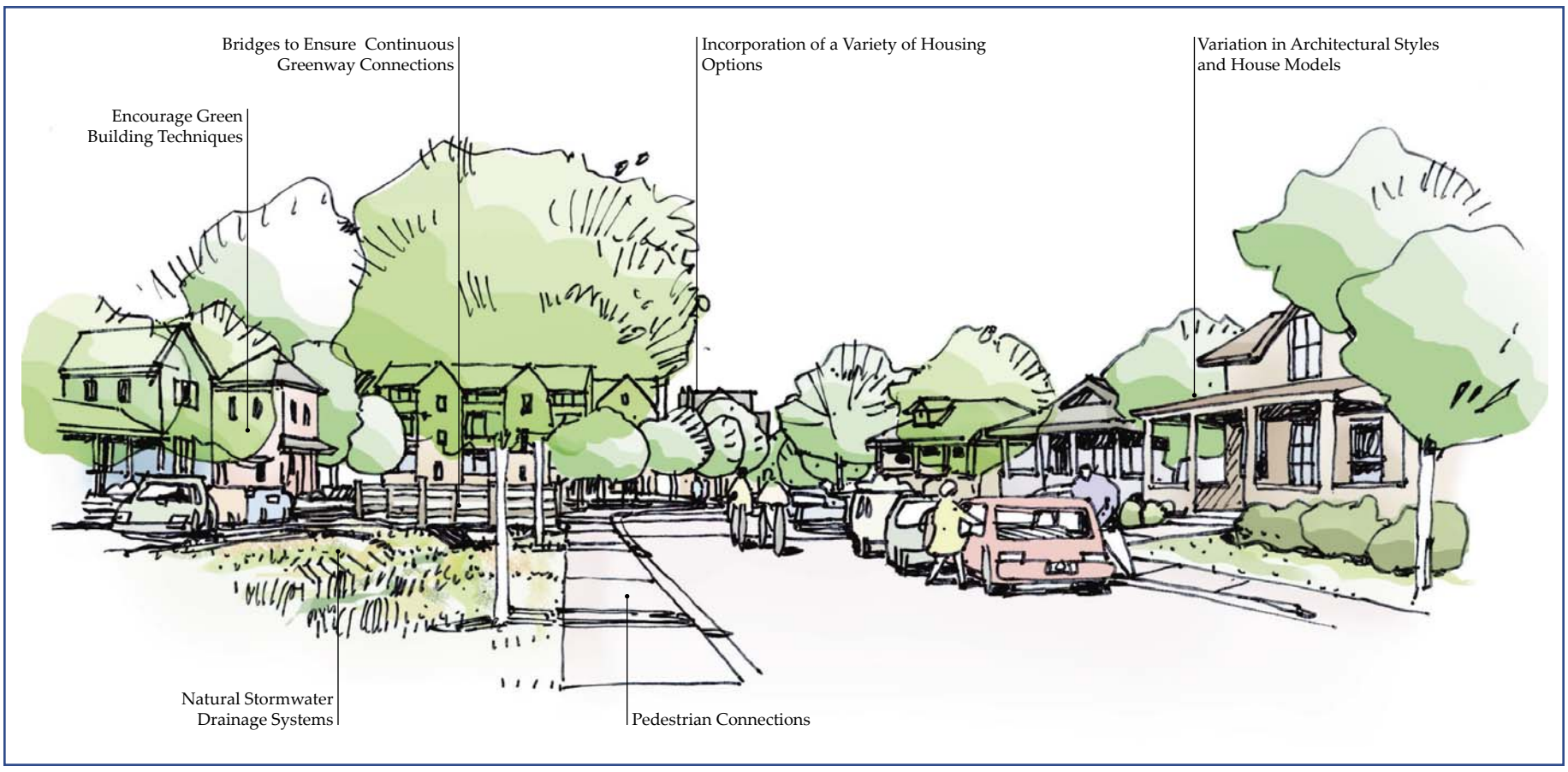
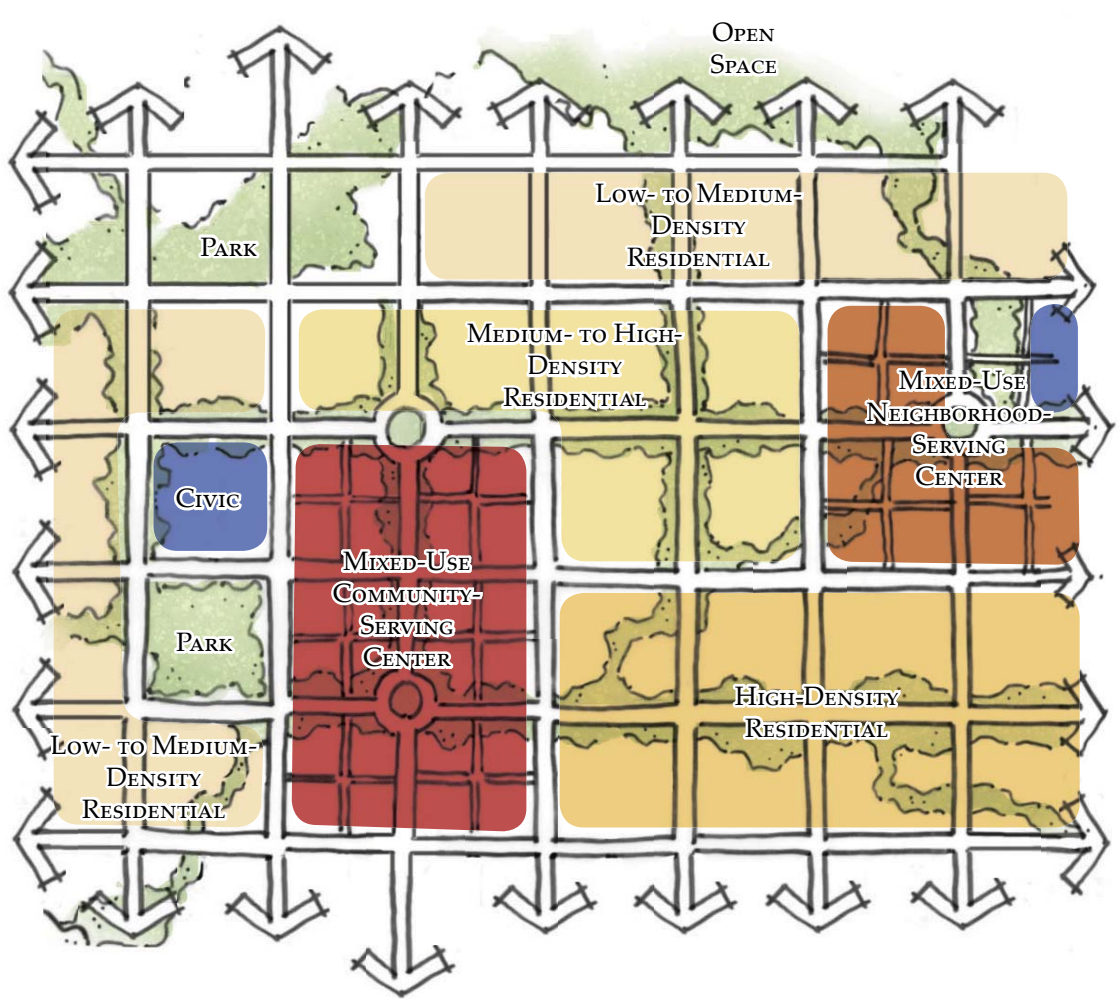


Figure NH-1.1. Walkable Neighborhood



Benefits:

- Promotes protection and conservation of natural resources
- Shapes the character, image and identity of the community
- Allows wide range of diversity of residents
- Fosters community interaction
- Supports local commercial
- Provides housing near work areas
- Provides a range of housing types and affordability
- Provides pedestrian access to services
- Reduces crime due to a more active area
- Reduces water usage due to smaller lot sizes
- Promotes low-water usage landscaping
- Reduces land consumption
- Provides easy access to schools, parks and other amenities
- Promotes transit ridership and reduces reliance on the car
- Promotes public health through physical activity by facilitating walking to school, employment, shopping and other destinations
- Encourages interaction with and appreciation of the natural environment

Figure NH-1.2. Compact, Connected Neighborhoods

Economic Development

"Encourage a balanced community with a diversity of employment opportunities."

Guiding Principles

Guiding Principle ED-1. *Create a hierarchy of pedestrian oriented, neighborhood and village centers with a diversity of commercial, office, employment and housing opportunities.*

Policy ED-1.1. Create pedestrian-oriented Town, Village and Neighborhood Centers in the area.

- Centers should be pedestrian friendly through the use of planting, coordinated site furnishings, pedestrian-scale lighting and building facades, and awnings for shade and protection from weather.
- Centers should include opportunities for gathering places, like plazas, sidewalk seating areas, and courtyards.
- Connect the Northwest Quadrant centers and other employment areas to Downtown Salt Lake City and other centers with roads, trails, and transit.

Guiding Principle ED-2. *Preserve areas for future industrial, manufacturing, research or distribution.*

Policy ED-2.1. Preserve land for industrial expansion south of Interstate 80, ensuring the City's economic sustainability.

Mixed-Use Center offering residential, retail, commercial and entertainment

Policy ED-2.2. Encourage the continuation and expansion of the Salt Lake International Airport and airport-related industry.

- Reserve some land adjacent to the Airport to allow for future runway expansion.
- Coordinate with the Airport on future expansion plans.
- Maintain the high level of compatible land uses that exist around the Airport today.
- Capitalize on the future TRAX line that will connect the Airport and Downtown, and extend it through the TOD/ Employment Corridor and into the Town Center.

Policy ED-2.3. Encourage the continuation of mining operations in an environmentally responsible manner.

- Recognize the significant social, cultural, and economic contribution that the mining industry has had on the well-being of the State of Utah and the Salt Lake Valley.
- Reserve land adjacent to existing mining operations to allow for future expansions.
- Recognize that land adjacent to the tailings impoundment may be utilized for future expansion.
- Coordinate with Kennecott and other affected owners regarding future expansion plans.
- Maintain the level of compatible land uses that currently exist around the tailings impoundment.
- Consider social, economic, and environmental impacts and benefits when considering proposals to expand mining operations.
- Comply with federal and state rules and regulations for the expansion, management, monitoring, reclamation, and cleanup of mining operations.
- Utilize buffers and /or other protective features between new development and existing industries, such as fencing, screening, barriers, and earth berms.

Policy ED-2.4. Create additional economic opportunities by linking existing and future jobs with nearby transportation and housing options.

Policy ED-2.5. Use appropriate industrial and office uses to buffer natural resources.

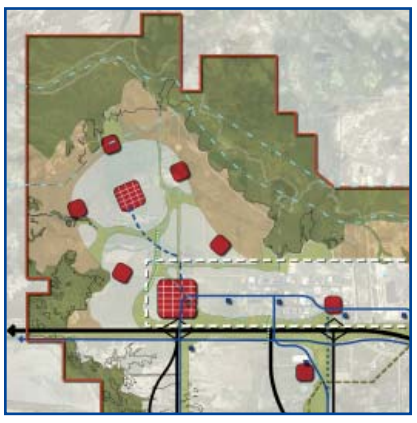
Center Characteristics			
Elements	Town Center	Village Center	Neighborhood Center
			
Recommended Number of Centers	1	1 - 2	4 - 10
Approximate Distance Between Centers	N/A	1 - 2 Miles	½ Mile - 1 Mile
Character	Regional Serving	Regional Serving	Neighborhood Serving
Commercial	Large Retail and General Merchandise, Restaurants, Lodging, Entertainment, Employment	Retail and General Merchandise, Restaurants, Small Lodging, Entertainment, Employment	Locally-Serving Retail, Grocery Store, Restaurants
Office	Large-scale office	Mid-scale office	Small-scale / mixed-use
Civic	Community Parks, Recreation Center, Library, Municipal Services, Places of Worship, Festival Space	Community Parks, Recreation Center, Library, Municipal Services, Places of Worship, Festival Space	Neighborhood Parks, Recreation Center, Library, Places of Worship
Education	High School	High or Middle School	Middle or Elementary School
Transit	Transit Center	Transit Access	Transit Access
Supporting Residential	Medium-, High-Density, Mixed-Use Residential	Low-, Medium-, High-Density, Mixed-Use Residential	Cluster, Low-, Medium-, High-Density Neighborhoods, Mixed-Use Residential
Approximate Walking Distance to the Majority of Residential	¼ to ½ mile	¼ to ½ mile	¼ mile

Table ED-1.1. Village & Neighborhood Centers

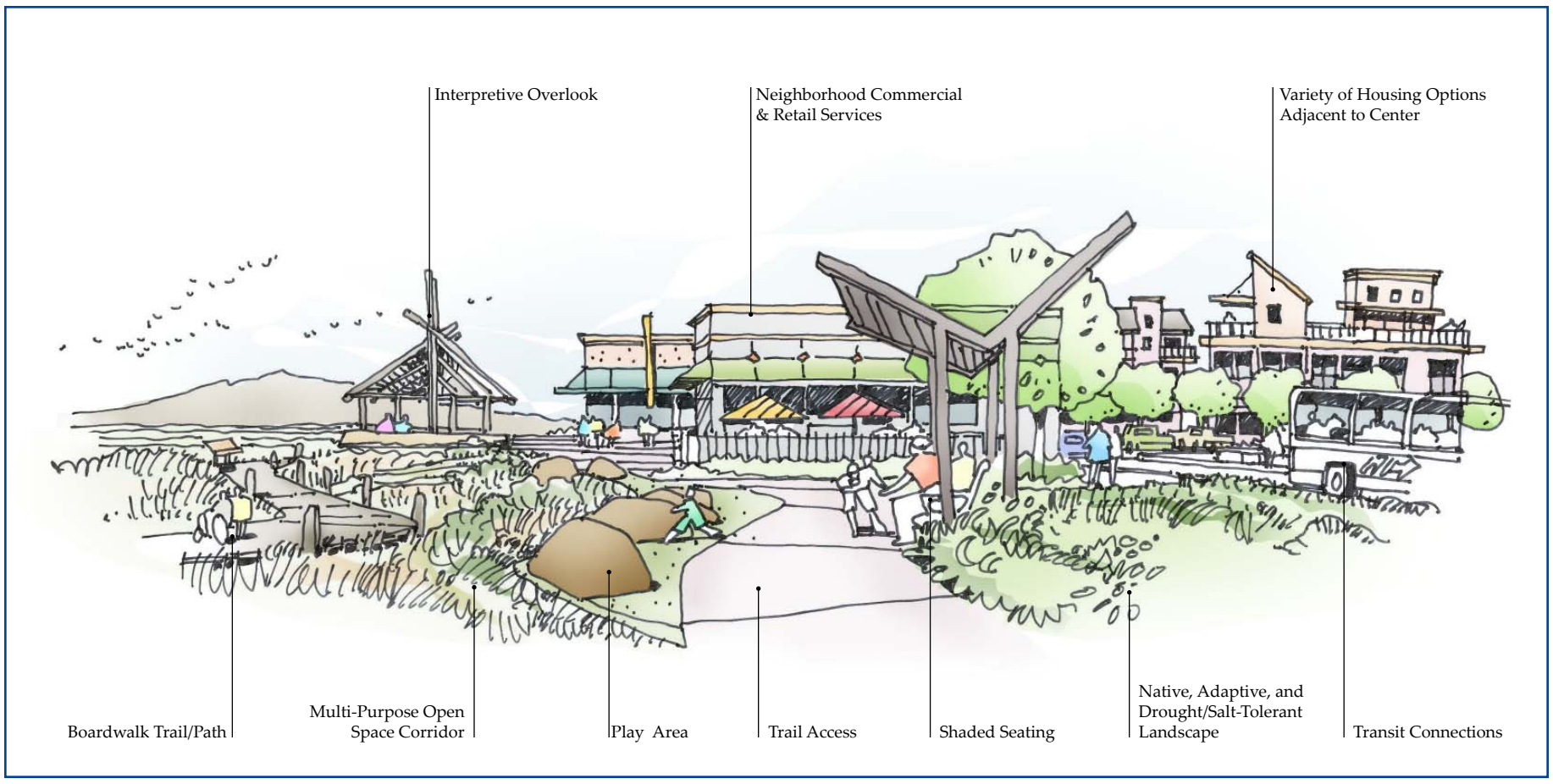


Figure ED-1.1a. Neighborhood Center

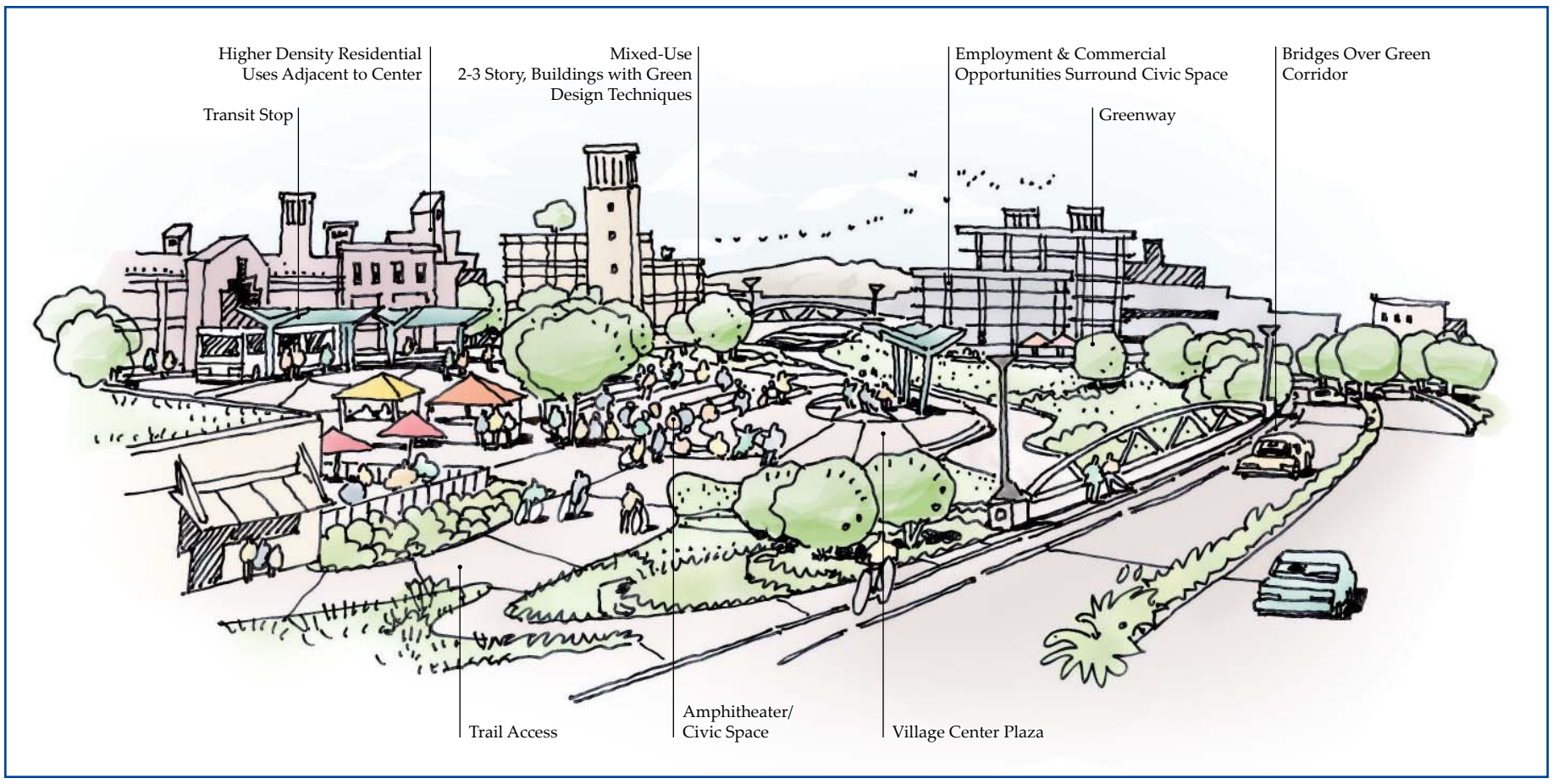


Figure ED-1.1b. Village Center

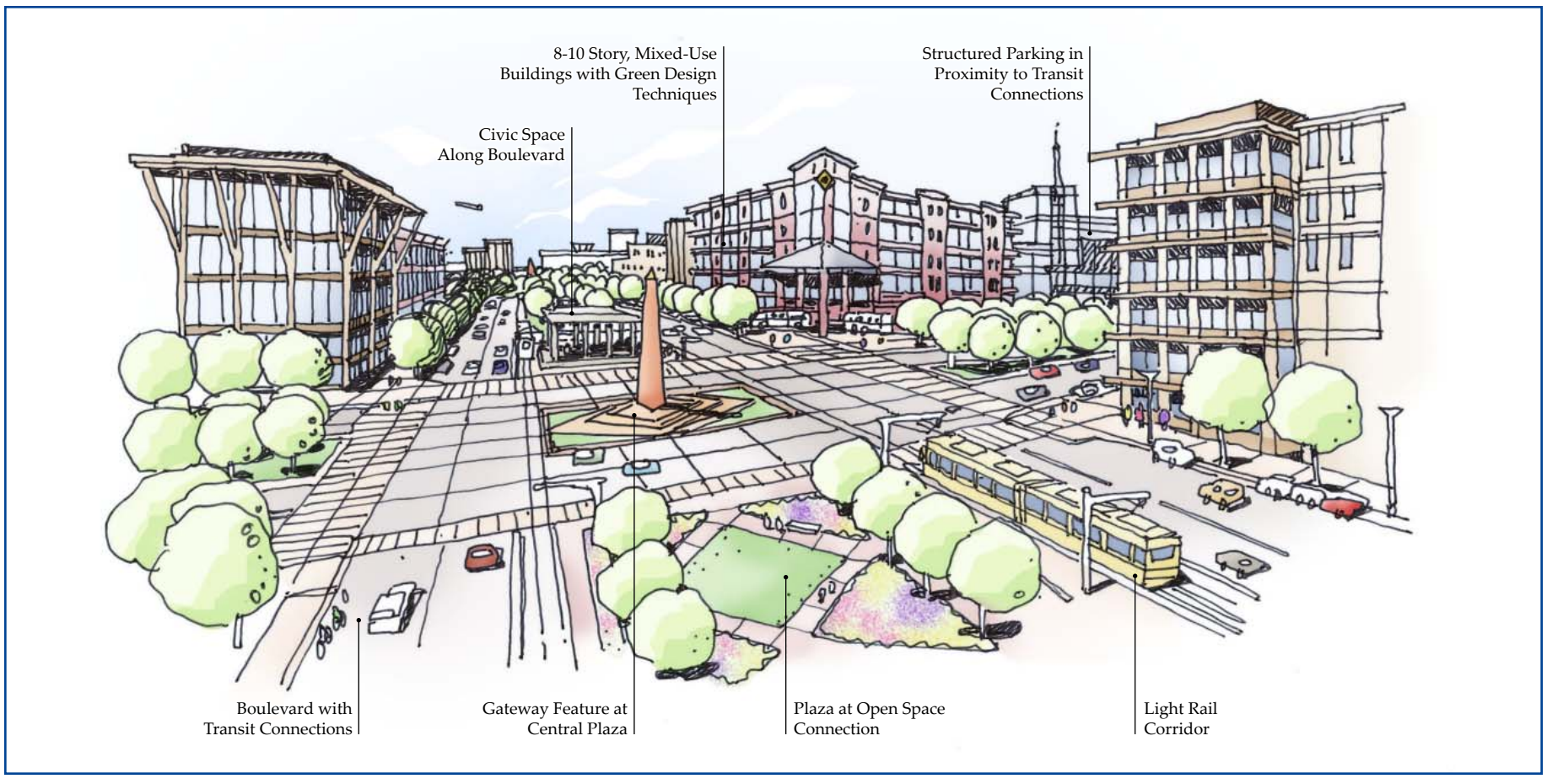


Figure ED-1.1c. Town Center

Guiding Principle ED-3. *Concentrate commercial and industrial development near major transportation corridors.*

Policy ED-3.1. Encourage industrial, manufacturing, regional retail, and major office uses adjacent to Interstate 80, near existing industrial lands, the Airport, and around the intermodal rail facility.

- Create new transit-oriented corridors adjacent to proposed transit systems.

Policy ED-3.2. Create a more diverse and vibrant environment within commercial areas.

- Encourage architectural diversity along commercial street frontage.
- Encourage signage that identifies businesses without dominating the setting.
- Within large business parks, incorporate prominent gateway features at high visibility locations and along roadways, and screen maintenance, service, and parking areas with landscaping and materials consistent with the building's design elements to create an attractive environment.
- Design commercial buildings, public facilities, and multifamily residential developments with architectural character that complements the natural surroundings.
- Design shared parking within large developments, and divide large parking lots into several smaller lots with landscaping.
- Locate off-street parking facilities at the side or rear of buildings to create pedestrian-friendly streetscapes.

Guiding Principle ED-4. *Expand the region's economic base by supporting business recruitment and development and job creation.*

Policy ED-4.1. Recruit new business enterprise that would bring higher wages and primary jobs to the Northwest Quadrant.

- Encourage employers to establish or relocate to the area to increase its long-term economic sustainability.
- Support ongoing efforts to encourage nonretail, small business development with programs that include management training, employee training, mentorships, and similar programs.

Guiding Principle ED-5. *Provide housing opportunities that support economic development and help attract high-wage businesses.*

Policy ED-5.1. Develop a variety of housing types that allow workers of various wage levels to live close to their employment.

Guiding Principle ED-6. *Promote the infill and redevelopment of underutilized areas.*

Policy ED-6.1. Promote infill and redevelopment of vacant or underutilized parcels within the area.

- Encourage brownfield redevelopment and cleanup, including the closed North Temple and Cannon Pioneer landfills.
- Encourage utilization of developable lands within the Northwest Quadrant through the consolidation of Natural Areas, and the use of habitat mitigation strategies.
- Where appropriate, utilize incentives such as reimbursement/ credit of fees, density bonuses, site design flexibility, the fast tracking of infrastructure and planning, Redevelopment Agency tax-increment financing of improvements, and other options to encourage infill, redevelopment, and remediation.

Guiding Principle ED-7. *Promote the realization of the vision embodied by this plan through enhancing economic viability.*

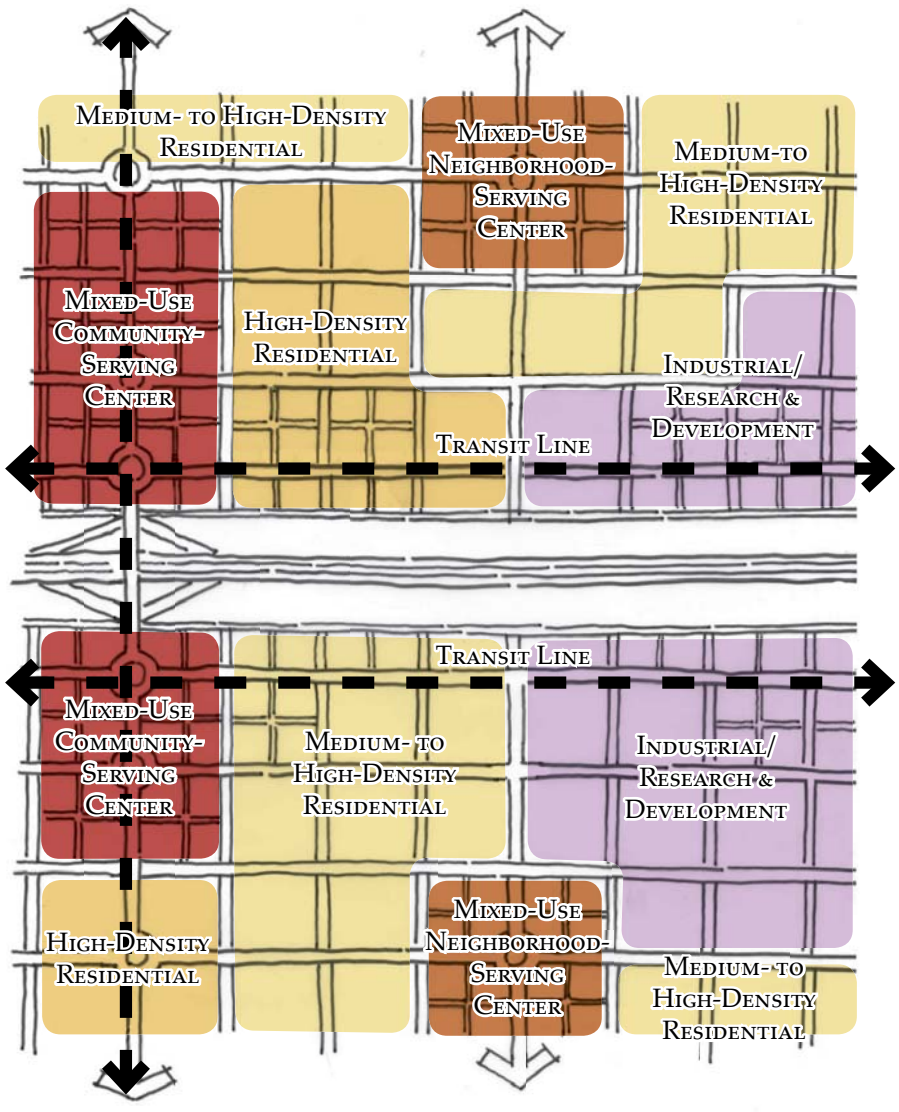
Policy ED-7.1. Recognize the unique opportunity to promote economically sustainable development through public/private partnership.

- Seek opportunities for innovative funding and financing opportunities.
- Recognize the financial contribution to the City created by development of the Northwest Quadrant.
- Undertake formal review of impact fees applicable to the Northwest Quadrant to comply with legal constraints and to fairly allocate the costs of implementing this Plan and providing necessary services within the Northwest Quadrant.
- Explore equitable and creative allocations of the costs of implementing this Plan among all stakeholders.

Industrial/warehousing use

Employment /office use

Retail/anchor use



Benefits:

- Reduces energy consumption and pollution from motor vehicles
- Protects needed land for industrial expansion, ensuring the City's economic sustainability
- Creates more vibrant, active areas by mixing together different types of activities, benefiting from each other's proximity
- Improves quality of life and livability
- Reduces travel time, transit ridership and congestion

Figure ED-1.1d. Integration of employment and neighborhoods

Multi-Modal Transportation

"Establish and maintain a balanced multi-modal transportation system that provides effective, efficient and safe mobility for residents."

Guiding Principles

Guiding Principle MT-1. *Create a transportation hierarchy that accommodates travel at the regional and local level.*

Policy MT-1.1. Provide efficient regional access to the site with transit, freeway, arterials, and bikeways.

- Plan for premium transit service to access the Northwest Quadrant. Light Rail or Bus Rapid Transit should be considered.
- Consider transit first between Salt Lake City and the Northwest Quadrant, with a logical extension from the Airport TRAX line.
- Serve the most densely populated site within the Northwest Quadrant with premium transit. This should be the Town Center.
- Link phasing of infrastructure with development to ensure critical density levels to enable a successful transit system.
- Ensure freeway access to the Northwest Quadrant with interchanges from Interstate 80.
- Provide secondary access to the Northwest Quadrant with arterials. Arterials should ideally be extensions of existing roadways.
- Complete the proposed bikeway between the International Center and Saltair to provide regional bike access to the Northwest Quadrant.

Policy MT-1.2. Provide efficient internal circulation between development nodes within the Northwest Quadrant with local transit, collectors, and bikeways.

- Provide local transportation service with bus or shuttle bus (possibly streetcar) as appropriate.
- Coordinate local and regional transit service to provide seamless transfers between nodes.
- Provide secondary access between development nodes with collectors.
- Develop off-street bikeways to connect development nodes. Off-street bikeways should be a minimum of 12 feet wide and be designed to accommodate both higher speed cycling (commuting) as well as recreational uses.
- Develop on-street bikeways to connect development nodes where off-street connections do not exist. If accommodated on an arterial, on-street bikeways should be separated from auto traffic with infrastructure. If accommodated on a collector, a signed striped bike lane, 5 feet wide, should be provided.
- Consider branding throughout the bicycle network with special signage and wayfinding to increase visibility of the system and ease of use.
- Provide bicycle facilities for regional travel, including bicycle lockers, racks, and shelters.

Policy MT-1.3. Ensure connectivity between areas developed in the Northwest Quadrant to Salt Lake City International Airport, Downtown, and the West Bench communities.

- Plan for the extension of the proposed Airport light rail system through the Northwest Quadrant, connecting to the planned 5600 West fixed-guideway transit line and continuing farther west into the center of the proposed mixed-use centers north of Interstate 80.
- Work with the Wasatch Front Regional Council (WFRC), the Utah Transit Authority (UTA), and others to plan and preserve corridors for light rail transit, and seek funding to advance construction of an extension of the Airport light rail system.

Policy MT-1.4. Integrate the proposed Mountain View Corridor into the Northwest Quadrant.

- Plan for and encourage a direct connection from the planned Mountain View Corridor freeway to the area north of Interstate 80.

Policy MT-1.5. Provide a network of streets based on a roadway typology that accounts for multi-modal travel, as well as automobiles.

Boulevard

Local street

Transit station

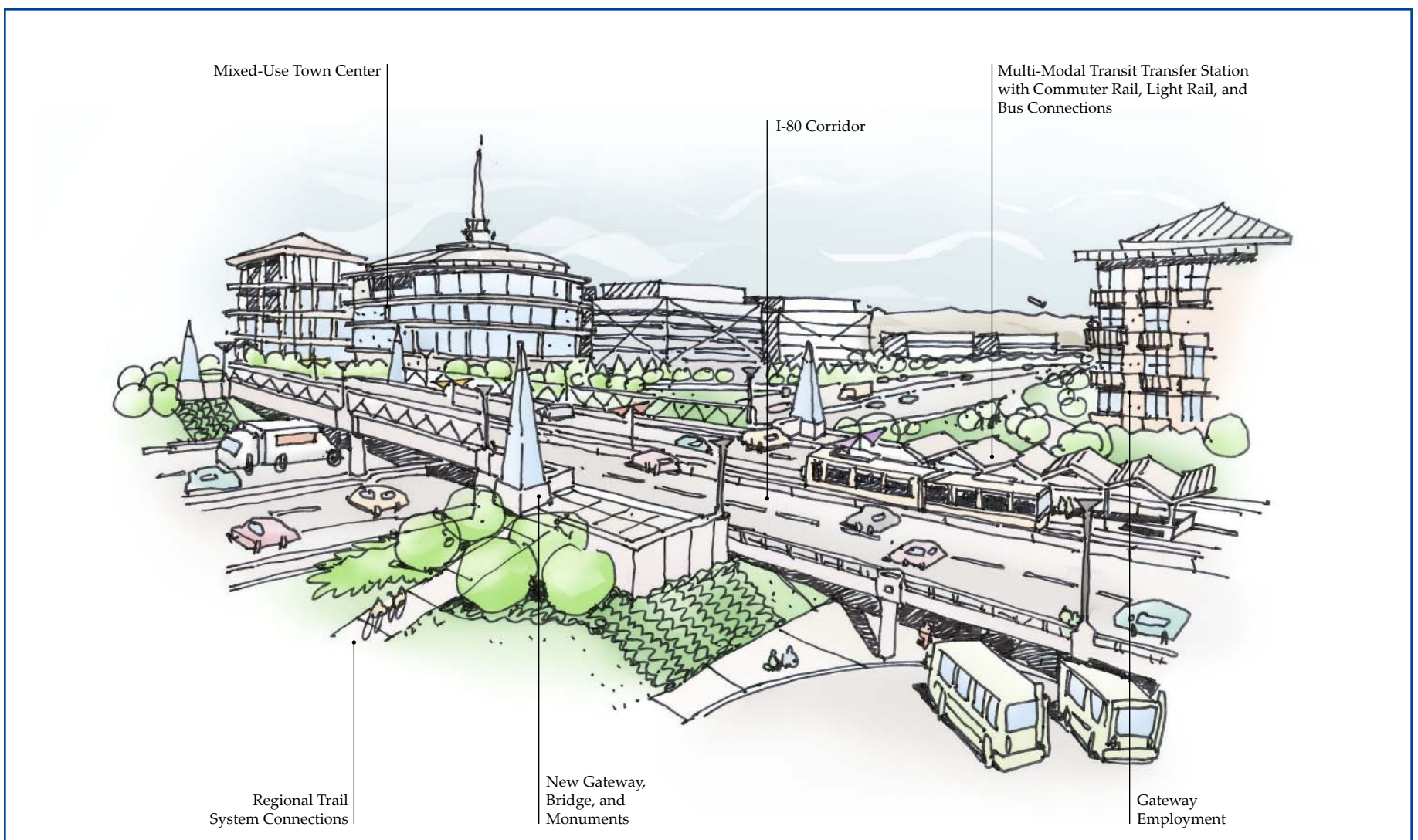


Figure MT-1.1a. Interstate 80 and 7200 West Gateway to Salt Lake City

- Size roadways for efficient access to major nodes of development, while respecting the natural landscape and visual quality of the area.

Policy MT-1.6. Connect new residential areas with the West Bench community and other areas of the City.

Policy MT-1.7. Scale roadways with the density of surrounding development.

- Incorporate landscaped medians to divide travel lanes in high-capacity corridors.
- Plan roadways on a grid or modified grid system to ensure distribution of automobile trips, while respecting the natural landscape and visual quality of the area.

Policy MT-1.8. Partner with the Utah Department of Transportation (UDOT), UTA, and WFRC to continue to improve transportation options, including the funding and improvement of existing and future interchanges.

- Work with UDOT and WFRC to advance planning for and funding of such connection.

Guiding Principle MT-2. *Encourage concentrated growth along existing and planned transportation corridors and transit nodes.*

Policy MT-2.1. Offer a variety of transportation choices and encourage use of alternative modes of transportation.

- Create and implement a comprehensive transportation demand management (TDM) program aimed at reducing weekday peak period trips.
- Provide transit service (with vans, shuttles, buses) to rail or other major transit facilities and/or another major destination, such as a retail or employment center.
- Reduce vehicle trips, overall miles traveled, traffic congestion, air pollution, and greenhouse gas emissions through center design, pedestrian amenities, and the provision of transit.
- Reduce energy consumption and pollution from motor vehicles by encouraging less use of motor vehicles through creative design.

Policy MT-2.2. Encourage transit use and reduce driving times and vehicular trips by creating safe and comfortable transit facilities.

- Provide covered and partially enclosed shelters with seating and lighting at each transit stop.
- Provide kiosks, bulletin boards, and/or signs devoted to providing local transit information, including basic schedule and route information at each transit stop.

Guiding Principle MT-3. *Increase land use densities at major bus and rail transit nodes along transit corridors.*

Policy MT-3.1. Plan and seek to develop a mix of land uses, including residential, commercial, and office around transit nodes to promote higher ridership and reduced automobile travel.

Policy MT-3.2. Consider the location of transit lines and nodes prior to approving development.

Policy MT-3.3. Develop locations that exhibit superior performance in providing transportation choices.

Guiding Principle MT-4. *Promote development and infrastructure that is transit, pedestrian and bicycle friendly.*

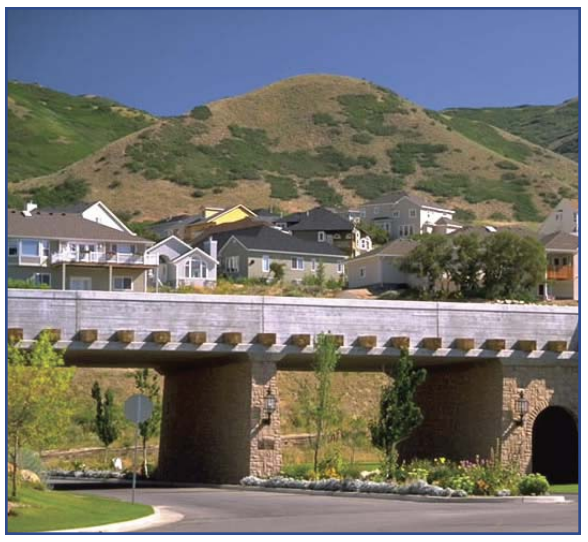
Policy MT-4.1. Provide appealing and comfortable street environments to promote pedestrian activity, transit ridership and bicycle use, and to increase trips internal to development.

- Provide a network of bicycle facilities, including separated bike paths, bike lanes, and bike routes.
- Include detached bike lanes and detached sidewalks along corridors.
- Provide highly visible, safe pedestrian crossings.
- Include attractive, uniformly designed street lighting and furnishings.
- Use appropriate but minimal levels of lighting to keep sites darker near Natural Areas.

Guiding Principle MT-5. *Purposefully integrate urban form and the transportation network.*

Policy MT-5.1. Utilize roadways as a means to buffer protected lands.

Policy MT-5.2. Modify the cross section of roads to allow for the integration of transit, land use, and other multi-modal options.



Design with regional materials

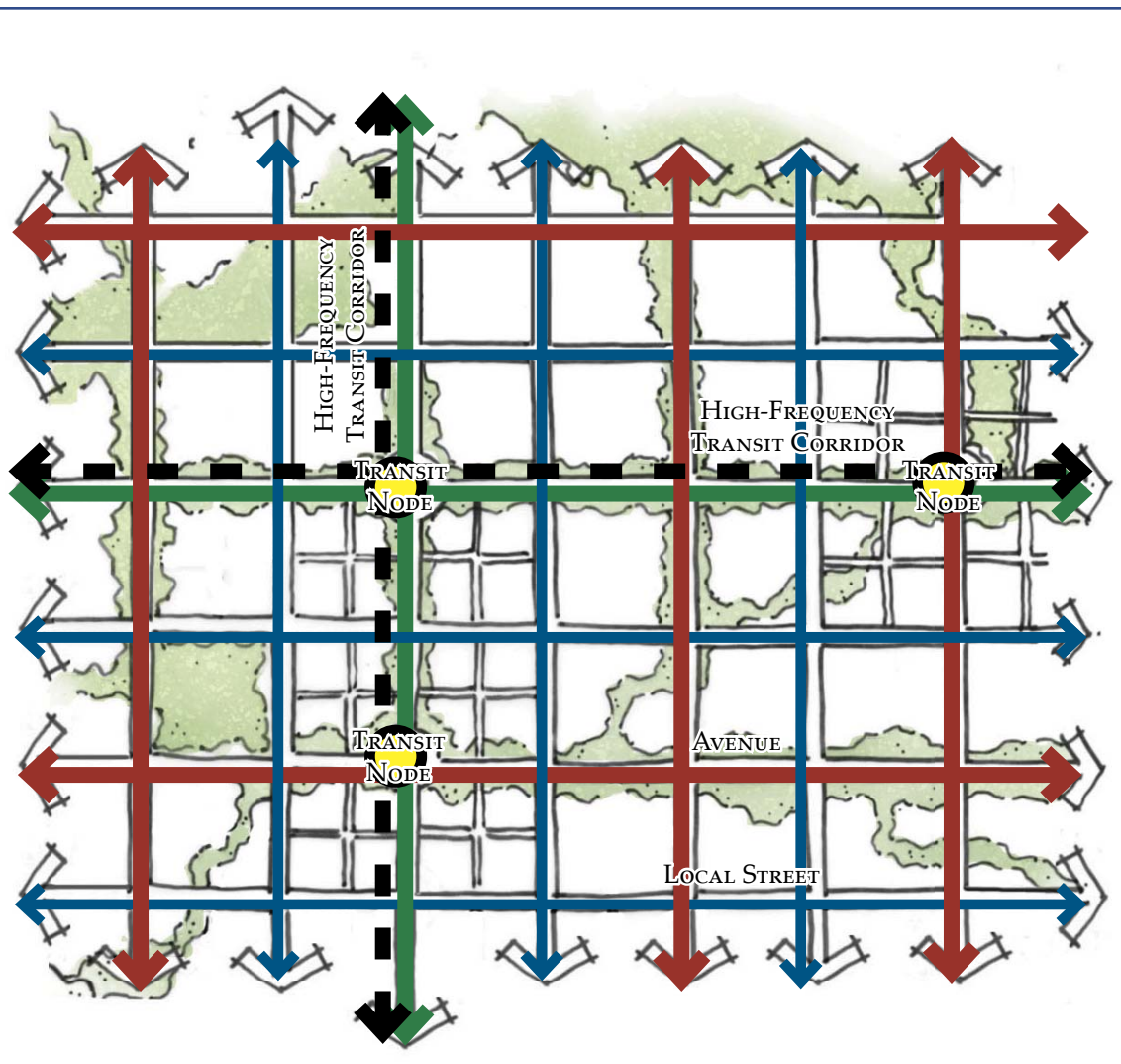
Incorporation of multi-modal transit options

Guiding Principle MT-6. *Promote the design of transportation corridors that support the natural landscape.*

Policy MT-6.1. Transportation corridors shall be designed to minimize impacts to natural drainage areas.

Policy MT-6.2. Use native and natural landscaping materials within transportation corridor rights of way.

Policy MT-6.3. Native or natural landscaping materials within transportation corridor rights of way may not interfere with sight distance requirements or any other safety design requirements.



Benefits:

- Reduces vehicle trips, overall miles traveled and traffic congestion
- Reduces energy consumption and pollution from motor vehicles
- Improves public health through increased physical activity
- Ensures connectivity within the development as well as to the Great Salt Lake, Salt Lake City International Airport, Downtown and new West Bench Communities
- Develops locations that exhibit superior performance in providing transportation choices
- Offers more transportation choices

Figure MT-1.1b. Efficient transportation system

Parks, Trails & Recreation

"Provide a diverse system of parks, trails, open space and recreation facilities."

Guiding Principles

Guiding Principle PT-1. *Provide and maintain a diverse, high-quality, safe and affordable system of parks and recreation facilities that provide for all ages, genders and ability.*

Policy PT-1.1. Provide a balanced system of parks, trails, and recreation facilities that is equitably distributed and accessible to all residents.

- Construction and location of each park type should adhere to the standards within the 1999 Salt Lake City Parks and Recreation Master Plan.
- Ensure the majority of residents are within 1/4 mile of a neighborhood recreation facility and within 1/4 mile of a multi-use trail.
- Ideally, locate community recreation facilities within 1/2 mile of the neighbors they are intended to serve, in Neighborhood Centers and in locations that are comfortably and safely accessible by pedestrians and bicyclists.
- Provide regional parks within 1 to 2 miles of the majority of residential areas, and on sites that are accessible by trails, bike lanes and major roadways, as well as near Village Centers.
- Where possible, co-locate schools, parks, and recreation facilities to utilize shared resources and parking.
- Provide off-leash dog parks in appropriate locations to support keeping pets away from conservation and natural areas.
- Require that all parks and recreation facilities meet or exceed the requirements of the Americans with Disabilities Act (ADA).
- Develop parks at neighborhood nodes or at fringe areas within the Conservation Development Zone.

Policy PT-1.2. Provide a functional and accessible system of recreation facilities and community centers that offers both organized and self-directed activities to citizens of all ages and abilities.

- Centrally locate recreation centers, community centers, and other recreation facilities that are heavily used by youth, adults, and seniors on sites with visual and vehicular access from major roadways, within Village or Town Centers, with public transit access, and with direct trail connections.

Policy PT-1.3. Ensure that parks, trails, and recreation facilities will serve the diverse needs of the community, including health promotion, and environmental, economic, and social sustainability.

- Design parks and recreation facilities to provide a variety of experiences that appeal to a broad range of interests, abilities, and ages.
- Locate multipurpose practice fields for youth sports in neighborhood parks as well as community parks. Size neighborhood parks adequately to allow for such uses.
- Be responsive to specialized needs of citizens, such as those activities that could be enjoyed by the elderly, the very young, and the disabled.
- Emphasize the use of nonirrigated landscapes, native species, and low water-requiring plant materials that respond to the specific groundwater and soil characteristics of the Northwest Quadrant.
- Seek to avoid the use of pesticides, herbicides and fertilizers that impact wildlife and water quality, and use sustainable management techniques. Avoid environmentally sensitive areas when locating developed parks and recreation facilities.
- Where appropriate, locate sports fields to also serve as detention areas and buffers for wildlife refuge areas. Protect water quality through implementation of best management practices in the design of stormwater conveyance and detention facilities.
- Restore brownfields (old landfills, other potentially contaminated sites) to appropriate productive use areas.
- Utilize the most up-to-date, environmentally sustainable design techniques in the construction of new parks, including the use of recycled materials, locally manufactured products, locally available

Neighborhood park

Regional park

Multi-purpose trail system in greenway

Figure PT-1.1. Integration of Industrial Area and Park

materials, and low energy-requiring facilities and technologies to the extent practicable.

- Provide residents with information regarding the benefits of sustainable design in parks and natural areas through demonstration areas, organized wildlife and sustainability programs, and interpretive signage.
- Encourage more intensive active recreation uses to the south of Interstate 80, including possibly a BMX/ ATV park at the landfill site.

Guiding Principle PT-2. *Provide a system of interconnected, nonmotorized trails that connect to neighborhoods and services, and regional trails system.*

Policy PT-2.1. Design a trail system connecting major destinations (e.g., regional and community parks, greenways, recreation centers, shopping districts, employment districts, Village Centers, Neighborhood Centers, Downtown, etc.) and provide opportunities for trail loops with areas of interest along the route. This trail should occur, at least in part, within greenways.

Policy PT-2.2. Design a perimeter trail system that is located, at least in part, within the conservation zone. The trail should provide an opportunity to experience the unique sense of place of the Great Salt Lake. Follow best practices for locating trails away from high concentrations of sensitive vegetation and wildlife, including avoiding habitat core areas.

Policy PT-2.3. Concentrate trails and recreation use in and adjacent to greenways.

Policy PT-2.4. Connect neighborhood parks and neighborhood schools to the larger community-wide trail system with other neighborhood connector trails (where feasible and appropriate in the context of the neighborhood design) and on-street bike lanes and routes.

Policy PT-2.5. Provide citizens with a variety of multiple-use trails that are appropriately integrated with urban development plans and neighborhood designs.

- Design trails at an adequate width for multiple use and ongoing maintenance, and with adequate setbacks from adjacent roadways and private property.
- Provide both paved and nonpaved trails to accommodate a variety of users and variety of experiences, from urban to natural landscapes.
- Integrate bike and pedestrian improvements into roadway designs. Designate bike routes to encourage commuting by bicycling.
- Segregate trail use along highly congested trail segments to avoid trail user conflicts. Encourage the use of signage, speed control devices, and other methods to promote safety in these areas.

Policy PT-2.6. Provide support facilities and amenities along trails, including informational and interpretive signage, resting areas and waysides, viewing towers, and other facilities as appropriate.

Policy PT-2.7. Encourage multi-functional grade-separated crossings, such as bridges, roadway underpasses, and other means at selected locations for the safety of bicyclists and pedestrians.

Policy PT-2.8. Utilize the most up-to-date, environmentally sustainable design techniques in the construction of new trails, including the use of permeable pavements, recycled materials, locally manufactured products, locally available materials, and low energy-requiring facilities and technologies to the greatest extent practicable.

Policy PT-2.9. Minimize conflict between trail users and wildlife by using seasonal closures and prohibiting pets from sensitive areas.

Guiding Principle PT-3. *Promote bicycling and walking as ways to enhance personal health and improve the community environment.*

Policy PT-3.1. Encourage health, exercise, and educational programs that promote bicycling and walking as ways to enhance personal health and improve the community environment.

- Provide incentives to ride or walk to work.
- Provide educational materials to the public on the personal, economic, and environmental benefits of walking and bicycling in the community.

Policy PT-3.2. Utilize native vegetation in greenways and Conservation Development Zones.

Policy PT-3.3. Utilize appropriate Natural Areas, Conservation Development Zones, and greenways for recreation. Not all areas are suitable for recreation (see Policy EA-2.1, System of Protected Lands).

Policy PT-3.4. Where possible, locate park amenities to serve as a natural buffer to protected lands.

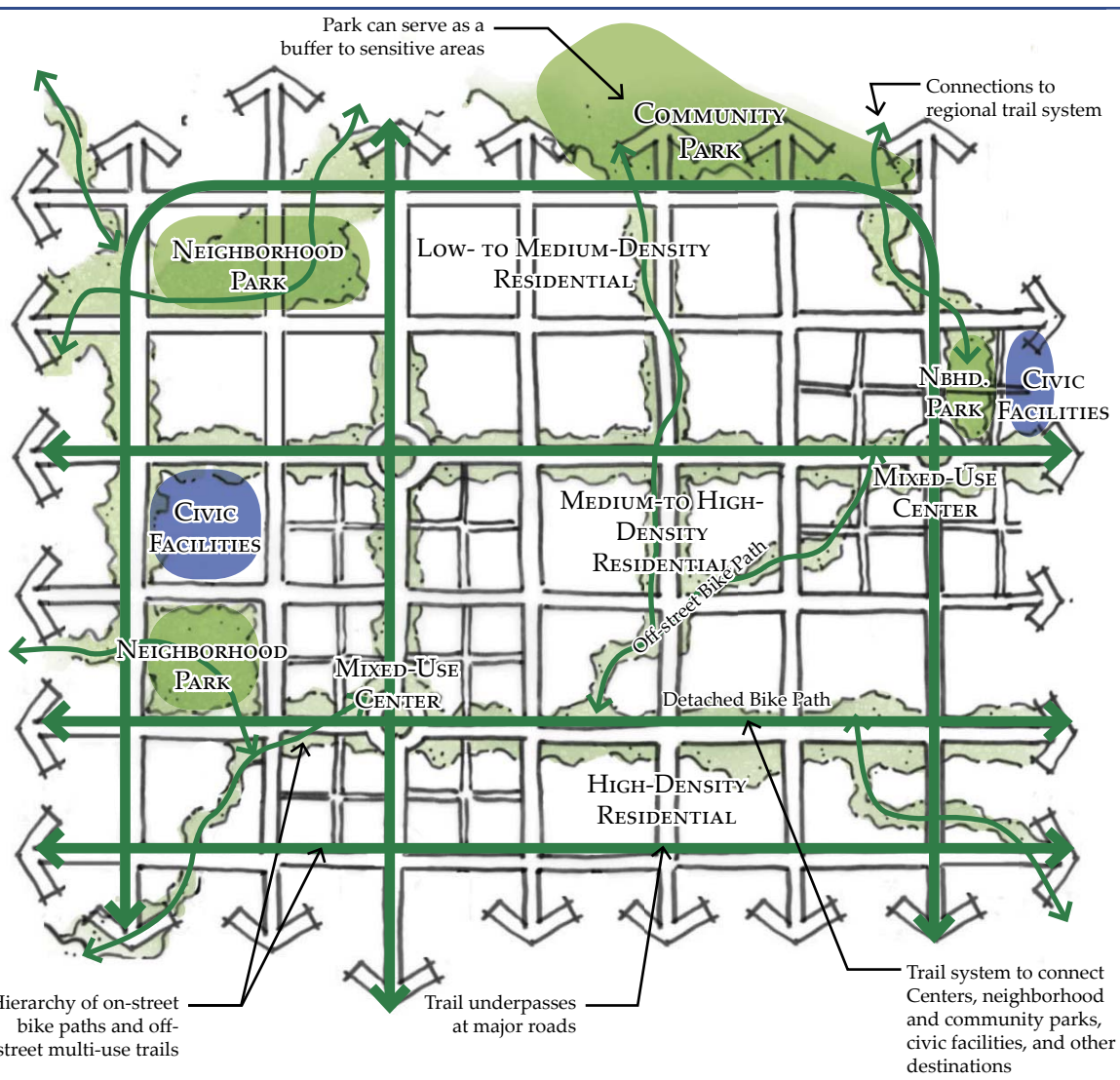
Policy PT-3.5. Utilize existing brownfield sites, such as the old landfills, to create recreational opportunities.

Farmers' Market civic spaces

Recreation center with native landscape

Policy PT-3.6. Strictly contain recreation with domestic pets to areas suited for their use to protect wildlife and native vegetation.

Policy PT-3.7. Design recreation features suited to the landscape that surrounds them.



Benefits:

- Improves public health through increased physical activity
- Links neighborhoods, centers and Downtown
- Meets a community's need for parkland and outdoor recreation space
- Reduces public costs for stormwater management, flood control and other forms of built infrastructure
- Improves air quality
- Offers more transportation choices

Figure PT-1.2. Diverse park system

Cultural & Landscape Resources

"Preserve those cultural resources, both built and natural, that are a significant part of the City."

Guiding Principles

Guiding Principal CLR-1. *Provide access to the arts and cultural programs for community members of all ages and socioeconomic levels.*

Policy CLR-1.1. Encourage the protection of cultural resources throughout the Northwest Quadrant.

- Identify and protect land that is of significant cultural history to the area.

Policy CLR-1.2. Initiate public art installations that reflect and celebrate the area's heritage. This could include gateway features adjacent to interchanges and in the Town, Village and Neighborhood Centers.

- Integrate public art throughout the community to celebrate the Great Salt Lake and the Northwest Quadrant's identity.
- Encourage publicly funded community arts programs through schools, senior centers and after-school facilities.

Guiding Principle CLR-2. *Promote and educate visitors about the Northwest Quadrant's unique resources. Include seminars, walking tours, and interpretive trails and sites.*

- Preserve the Natural Areas for the express purpose of encouraging visitors and greater understanding of the Great Salt Lake ecosystem.
- Incorporate natural resources into new parks, where applicable, and protect and preserve those resources.
- Where feasible and appropriate, the City or other agencies should assist in permanent protection of these areas.
- Encourage partnerships between organizations in the private sector, and engage the community in a nature and heritage education plan.

Public Services

"Provide coordinated and efficient public services within the area."

Guiding Principles

Guiding Principle PS-1. *Create reliable, cost-effective, environmentally sustainable systems of utilities, public facilities and services.*

Policy PS-1.1. Encourage use of native, adaptive, and drought-tolerant landscaping in public facilities and service corridors.

Policy PS-1.2. Design public service facilities with shared public access and stormwater use when appropriate.

Policy PS-1.3. Minimize public service costs in appropriate ways.

Policy PS-1.4. Reduce public costs for stormwater management, flood control, and other forms of built infrastructure by incorporating an efficient stormwater management system that emphasizes green technologies, low impact development, and best management practices.

Policy PS-1.5. Collaborate with adjacent townships and cities, various federal, state, and county agencies, and appropriate service providers to provide coordinated and sustainable development of the region.

Policy PS-1.6. Include mosquito abatement measures appropriate to the landscape.

Policy PS-1.7 Develop a public services utility plan that anticipates future needs and that will have the capability to accommodate changes such as fluctuations in demand and technological improvements in order to determine appropriate locations to minimize impacts on existing and future land uses.

- Ensure that the overall location and site design of utility systems including power generation substations are consistent with goals and principles of this plan and minimize impacts and disturbance to the residential communities and the natural resources.

Guiding Principle PS-2. *Provide educational facilities in proximity to homes, transit routes and/or civic amenities.*

Policy PS-2.1. Encourage the integrated establishment of educational facilities to promote walkability and its benefits, such as increased physical activity, interaction, and engagement.

- In coordination with school districts, determine the appropriate size and location of educational facilities in proximity to homes, transit routes, and/or civic amenities.
- In coordination with school districts, incorporate the development of at least one high school within the Town and/or Village Center and in proximity to multi-modal connections.
- In coordination with school districts, incorporate the development of middle/junior high schools within the Village and larger Neighborhood Centers and in proximity to multi-modal connections.
- In coordination with school districts, incorporate the development of elementary schools within Neighborhood Centers and residential areas.
- Provide opportunities for the development of sufficient housing to support at least one high school in order to promote community sustainability.
- Libraries, learning centers, after-school programs, early childhood development curricula, senior programs, and other facilities and services that provide educational opportunities should be located in centers and well distributed throughout the Northwest Quadrant.

Policy PS-2.2. Encourage the school district to continue to improve its educational system and facilities.

- Construct and renovate schools at an adequate pace for the growing population.
- Support a high level of education programs, staff retention, training, and citizen involvement.

Policy PS-2.3. Establish additional safety features (e.g., school crossing lights) to reinforce a commitment to safe travel by foot, bicycle, or transit to school.

Guiding Principle PS-3. *Develop a public safety plan for emergency access and travel.*

Policy PS-3.1. Plan for police, fire, and emergency services that are staffed at appropriate levels, creating a sense of security and a high level of protection for the Northwest Quadrant.

Guiding Principle PS-4. *Provide a common Northwest Quadrant design theme for public infrastructure, such as native landscaping, lighting, bridge design, signage, etc.*

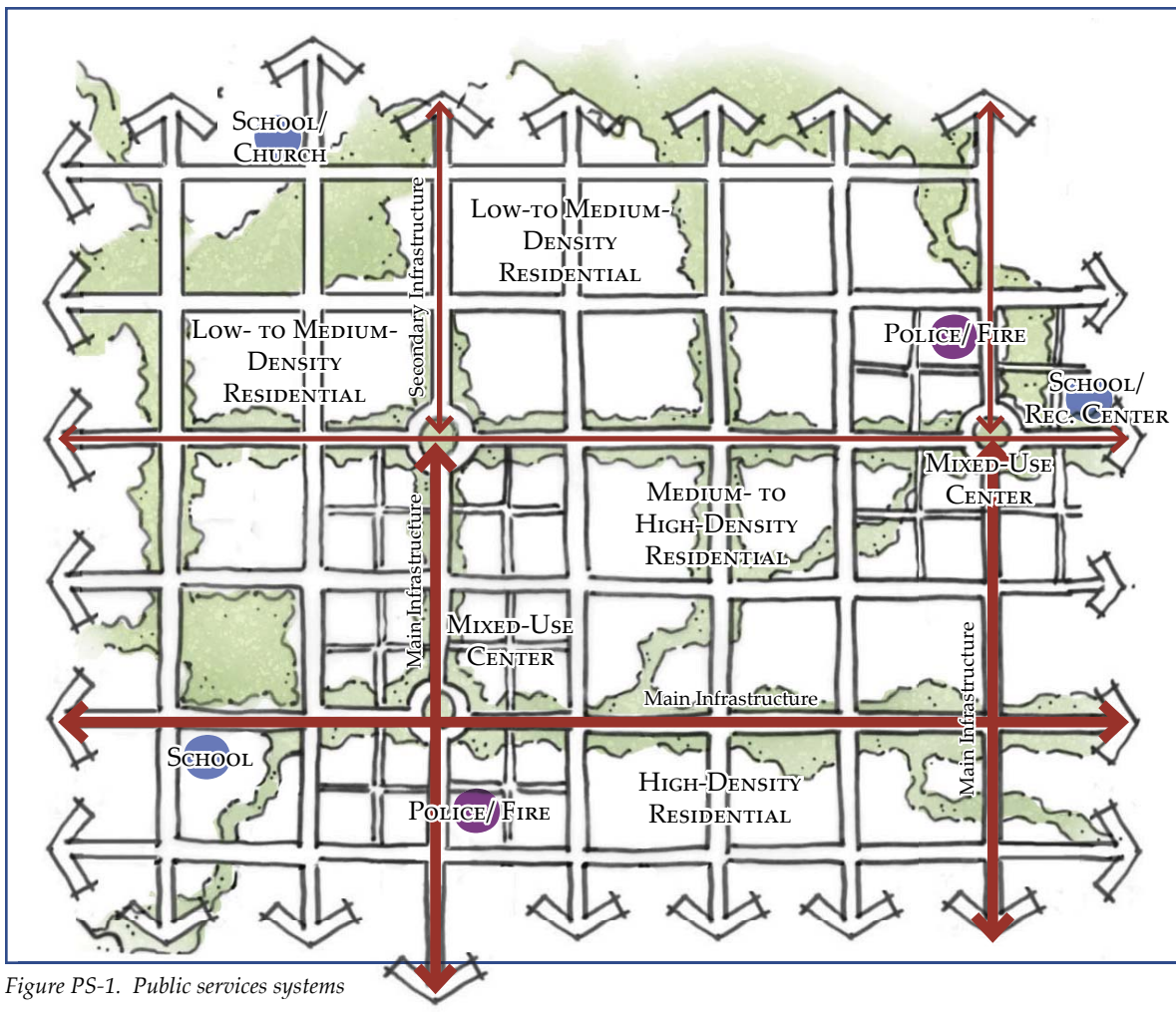


Figure PS-1. Public services systems

Cultural & Landscape Resources Benefits:

- Creates a sense of community values through the preservation of historical and physical elements of the Northwest Quadrant

Public Services Benefits:

- Uses infrastructure and resources efficiently
- Creates a sense of security and a high level of protection
- Minimizes infrastructure cost

Implementation

For many master plans, implementation is decades away. For the Northwest Quadrant, however, development of the new mixed use community could begin within the next several years. One of the first steps will be the rezoning of properties from holding zones to the appropriate zoning category. With only a few landowners, the City may wish to consider new types of zoning (mixed –use zones, planned community zones, etc.) that provide the flexibility, creativity and predictability necessary for large-scale master planned communities. These zoning types evaluate the overall property against the Master Plan, ensuring core concepts such as transit, environmental protection, jobs, housing, and other factors are met. Found below are over 50 action steps, each one ensuring the vision of Salt Lake City 's sustainable community is met.

This Plan does not attempt to assign funding responsibility or identify funding sources for these or other action steps. The action items below are suggestive of possible implementation strategies, and should be considered neither mandatory in the aggregate, nor exclusive. Where stated proposed policies or planning tools may conflict, decisions should bear in mind the overall goals of the Plan. Decisions regarding the implementation of development policies identified in this Plan shall be made objectively, based on community values and the best science and planning techniques available at the time. Nothing in this Plan is intended to inhibit or preclude the appropriate use of innovative and creative solutions to maximize the Plan's goals of environmental, social and economic sustainability.

Proposed Action for Initiation of Implementation	Applicable Area	Entities Involved	Time Frame
Future Land Use Plan			
1 Identify and delineate the exact parameters of the consolidated Natural Areas and Conservation Development Zone, based on the characteristics identified in Table EA-2.1, and associated field work, studies and analysis.	Natural & Conservation Areas	SLC, Property Owners, Developers, State/Federal Agencies	Short-Term
2 Review the Zoning District Map and initiate and process appropriate zoning changes to make the Zoning District Map consistent with the Future Land Use Map, and develop a new Planned Community Zone with appropriate performance standards for the large undeveloped area.	Community-wide	SLC, SLC OSLP, Property Owners, Developers	Short-Term
3 Create new zoning district for the Natural Areas that prohibits the development of structures.	Natural Areas	SLC	Short-Term
4 Amend the Lowland Conservancy and Airport Zones as appropriate.	Community-wide	SLC	Short-Term
5 Create a new zoning district and standards for the Conservation Development Zone that promotes development compatible with the natural environment and as described herein.	Conservation Development Zone	SLC	Short-Term
6 Develop design standards for the Northwest Quadrant that reflect the character of the area.	Community-wide	SLC, Property Owners, Developers	Short-Term
7 Prepare development regulations based upon appropriate studies which establish a substantial and significant nexus between the regulations and the goals and objectives of this Plan.	Community-wide	SLC	Mid-Term
Environmental Attributes			
1 Involve natural resources agencies, consulting firms, or an academic ecologist in identifying, and writing the management plans for, protected areas, addressing wildlife management, periodic flooding, invasive weeds, burning, etc.	Natural & Conservation Areas	DWR, SLC, SLC OSLP, USACE, Other Agencies	Mid-Term
2 Protect investment in restoration and habitat management (such as canals, created wetlands, etc.) by seeking sufficient buffers and resources to maintain their function.	Community-wide	Nonprofit, DWR, SLC, Property Owners	Mid-Term
3 Leverage Salt Lake City Open Space Lands Program funds to purchase conservation easements and/or transfer of development rights to protect sensitive lands.	Community-wide	SLC OSLP	Ongoing
4 Identify high-functioning wetlands suitable for protection and other wetlands that have the potential for enhancement, restoration, or mitigation elsewhere in the Northwest Quadrant. Identify the extent to which water bodies and/or wetlands on the site perform the following functions: 1) water quality maintenance, 2) provide wildlife habitat, and 3) hydrologic function maintenance, including flood protection.	Community-wide	SLC, USACE, Property Owners	Mid-Term
5 Conduct wetland delineations to determine jurisdictional wetlands and mitigation requirements and opportunities to be applied off site or in the Conservation Development Zone or Natural Areas.	Community-wide	SLC, USACE, Special Interest Groups, Developers	Short-Term
6 Identify funding sources for protection of the Great Salt Lake and adjacent resources.	Community-wide	SLC OSLP, Special Interest Groups, Property Owners, Developers, State/Federal Agencies	Ongoing
7 Conduct wildlife surveys in accordance with the most current, professionally acceptable methods and standards to better understand the wildlife diversity contained within the Northwest Quadrant.	Natural & Conservation Areas	DWR, SLC, Property Owners, Developers	Short-Term
8 Continue to refine and adopt the Buffer Toolbox process.	Community-wide	SLC, DWR, Property Owners, Developers	Short-Term
9 Delineate the size and parameters of buffers, and general features (moats, berms, fences, etc.), using the Buffer Toolbox process.	Community-wide	SLC, Property Owners, Developers	Mid-Term
10 Establish and extend formal agreements, and identify collaboration mechanisms for flyway conservation regionally and globally.	Community-wide	SLC OSLP, Special Interest Groups, Property Owners, State / Federal Agencies	Mid-Term
11 Identify permanent funding sources dedicated solely to the preservation of the Great Salt Lake ecosystem.	Natural & Conservation Areas	SLC OSLP, Special Interest Groups, Developers	Mid-Term
12 Establish a process for ongoing management of conservation properties, including adequate personnel, budget, weed control, wildlife management, and administration.	Community-wide	SLC OSLP, Special Interest Groups, Property Owners, Developers, DWR	Mid-Term
13 Protect restoration efforts by setting up a sustainable funding mechanism, such as trust or endowment, to continuously fund maintenance activities and to address new threats.	Community-wide	SLC OSLP, Special Interest Groups, Property Owners, Developers, DWR	Short-Term
14 Create a stewardship committee that will collaborate with the City to direct the preservation of the Great Salt Lake ecosystem.	Community-wide	SLC OSLP, Special Interest Groups, Property Owners, Developers	Mid-Term
15 Develop environmental education information.	Community-wide	SLC OSLP, Special Interest Groups	Short-Term
Green Design			
1 Create a sustainability program with metrics for the Northwest Quadrant that addresses energy, water, carbon, economic and other factors.	Community-wide	SLC, SLC DSE, Property Owners, Developers	Short-Term
2 Support community-based agriculture and create an entity to manage community growing spaces, such as a community group, co-op, homeowners association or public body.	Community-wide	Homeowners, Property Owners	Long-Term
3 Identify and require stormwater best management practices, such as bioswales, porous pavement, constructed wetlands, and retention and detention basins, to minimize project impact on the existing hydrologic cycle to support on-site stormwater infiltration and reuse, as appropriate.	Community-wide	SLC, Developers	Mid-Term
4 Increase site perviousness to reduce stormwater runoff.	Community-wide	SLC, SLC DSE, Developers	Mid-Term
5 Design and implement a Drought Mitigation Plan.	Community-wide	SLC, Developers	Mid-Term
6 Identify methods for use of rainwater and gray water reuse for irrigation and other uses, as appropriate.	Community-wide	SLC, SLC DSE, Developers	Mid-Term
7 Create landscaping guidelines that address appropriate plant species.	Community-wide	SLC, Developers	Mid-Term
8 Create a green infrastructure plan to protect natural resources.	Community-wide	SLC, Developers	Mid-Term

Neighborhoods			
1 Create design guidelines for neighborhood development, including the design and character of housing, streetscapes, civic areas, gateways, signage, etc.	Community-wide	SLC HAND, Planning, SLC, Property Owners, Developers	Short-Term
2 Update market studies to identify appropriate housing types over time.	Community-wide	SLC HAND, SLC, Property Owners, Developers	Ongoing
3 Create neighborhood master plans consistent with the Northwest Quadrant Master Plan.	Community-wide	SLC, Property Owners, Developers	Short Term
4 Identify high quality housing options across price-points.	Community-wide	SLC, Developers	Mid-Term
5 Identify tools for developing affordable housing, such as credit enhancement, land banking, market rate buy-downs, land donations, gap financing, a and technical assistance for tax credit development, donations from foundations, establishment of a trust fund, and development partnerships among the Northwest Quadrant developers, on-site builders, the City, the Utah Housing Finance Agency, and nonprofit organizations.	Community-wide	SLC HAND, RDA, SLC, Developers	Mid-Term
Economic Development			
1 Create design guidelines for employment areas (especially along Interstate 80 as the Western gateway to the City), including the design and character of commercial and retail businesses, public streetscapes, civic areas, gateways, signage, etc.	Community-wide	SLC, Property Owners, Developers	Short-Term
2 Create an overlay district that implements design standards for key areas, such as TOD areas, areas along Interstate 80, gateways, etc.	Community-wide	SLC, Property Owners, Developers	Short-Term
3 Enhance the area south of Interstate 80 as a regional freight and distribution hub for Salt Lake City.	Community-wide	SLC, Property Owners	Short-Term
Multi-Modal Transportation			
1 Create design guidelines for transit amenities, including the design and character of transit stops and stations, streetscapes, gateways, signage, etc.	Community-wide	Utah Transit Authority, SLC, Property Owners, Developers	Mid-Term
2 Implement recommendations from UTA's 2009 Westside Transit Study.	Community-wide	SLC, Property Owners, Developers	Mid-Term
3 Preserve corridor for primary transit corridor connecting the Airport line and the Village Center.	Industrial Areas	SLC, Utah Transit Authority, Property Owners	Short-Term
4 Update the Transportation Master Plan to include the Northwest Quadrant.	Community-wide	SLC, SLC Division of Transportation, Property Owners	Short-Term
5 Preserve adequate right-of-way for multi-modal transportation in key corridors.	Community-wide	SLC, Utah Transit Authority, Property Owners	Short-Term
6 Update the existing Bicycle and Pedestrian Master Plan to include the Northwest Quadrant.	Community-wide	SLC, SLC Division of Transportation	Mid-Term
7 Work with UDOT to minimize the Interstate 80 barrier.	Community-wide	UDOT , SLC, Property Owners, Developers	Mid-Term
8 Develop frontage road system to reduce local travel on Interstate 80.	Community-wide	UDOT, SLC, SLC Division of Transportation, Developers	Mid-Term
9 Modify Salt Lake City street standards in the Northwest Quadrant to accommodate environmentally sensitive design.	Community-wide	SLC, SLC Division of Transportation	Mid-Term
10 Require developments to provide connections to areas outside of their development.	Community-wide	SLC, Developers	Long-Term
11 Encourage the development community to participate in auto trip reduction.	Community-wide	SLC, Developers	Long-Term
Parks, Trails & Recreation			
1 Coordinate with the Salt Lake City Open Space Lands Master Plan Update to incorporate areas within the Northwest Quadrant.	Community-wide	SLC, SLC OSLP, Developers	Short-Term
2 Prepare a comprehensive open space plan for the Northwest Quadrant that shows all areas to conserve and how they connect and function holistically.	Community-wide	SLC, SLC OSLP, Developers	Short-Term
3 Create a framework for acquisition strategy of open space parcels with value and cost data to create priorities for implementation.	Community-wide	SLC, SLC OSLP, Developers	Short-Term
4 Coordinate parks, trails, and open space planning with federal, state, and county organizations to create a regional trail system.	Community-wide	SLC, SLC OSLP, Developers	Short-Term
5 Develop protection mechanisms, such as direct acquisition, land dedication, application of conservation easements, future zoning, or sensitive land overlays.	Community-wide	SLC, SLC OSLP, Developers	Short-Term
6 Create a strategy for ongoing management of conservation properties, including adequate personnel, budget, weed control, wildlife management, and development of recreational amenities, interpretive features, and administration.	Community-wide	SLC, SLC OSLP, Developers	Short-Term
7 Identify funding tools, including grants, donations, general fund allocations, tax initiatives, and endowments.	Community-wide	SLC, SLC OSLP, Developers	Short term
Cultural & Landscape Resources			
1 Develop an interpretive program and materials that tell the story of the Great Salt Lake ecosystem and the Northwest Quadrant.	Community-wide	SLC, SLC OSLP	Mid-Term
2 Continue to develop and enhance the cultural landscape.	Community-wide	SLC, Developers	Mid-Term
3 Identify key cultural and landscape resources, and ensure greenway corridors and trails to provide public access to view significant resources.	Community-wide	SLC, Developers	Short-Term
Public Services			
1 Prepare an overall infrastructure plan that shows how water, energy, and other resources are integrated and holistically managed.	Community-wide	SLC DSE, SLC Public Services, SLC Public Utilities, SLC Building Division, SLC Planning, Developers	Short-Term
2 Continue to work with the school district to identify sites and school needs.	Community-wide	SLC, School Districts, Developers	Short-Term
3 Update water, sewer, storm drain, recreation, open space and other master plans to reflect development in the Northwest Quadrant.	Community-wide	SLC, SLC Public Utilities, Developers	Short-Term
4 Review parks, trails, and recreation facility requirements for the Northwest Quadrant, and identify adequate funding levels for their implementation.	Community-wide	SLC, SLC Public Services, Developers	Short-Term
5 Review funding needs of major transportation and utility infrastructure to determine if a special funding district is necessary.	Community-wide	SLC, SLC Transportation Division, Developers	Short-Term
6 Analyze Salt Lake City's impact fees structure for the proposed residential mixed-use community north of Interstate 80 and west of the International Center.	Residential and Mixed Use Areas	SLC	Short Term
7 Develop a public services utility plan that anticipates future needs and determines appropriate locations for substations, utility distribution systems and plants to minimize impacts on existing and future land uses.	Community-wide	SLC, SLC Public Services, Private Utility Providers	Short Term

Acronyms List: SLC – Salt Lake City; SLC OSLP – Salt Lake City Open Space Lands Program; RDA – Redevelopment Agency of Salt Lake City; HAND – Housing & Neighborhood Development; SLC DSE – Salt Lake City Division of Sustainability and the Environment; UDOT – Utah Department of Transportation; DWR – Utah Division of Wildlife Resources; USACE – U.S. Army Corps of Engineers; Developer – Owner, until development is initiated or property is sold for development purposes.

Resource Protection Buffer Toolbox Framework

General Description

The Northwest Quadrant is situated on the edge of the Great Salt Lake and includes wetlands, playa and upland habitats for wildlife. It has the potential to be a new sustainable community that embodies the principles of sustainable development – to balance and integrate the social, economic, and environmental components of the community while meeting the needs of future generations, respecting the needs of other communities, and preserving and (in some ways) enhancing natural ecological functions.

The Great Salt Lake is located, at least in part, on a shallow, closed basin playa, which results in large changes in lake surface area due to changes in water level elevation. The Great Salt Lake ranges in size from 950 square miles at its low elevation of 4,191 feet, to 3,300 square miles at elevation 4,211.6 feet. At an elevation of 4,215 feet, lake water overflows into the West Desert, further increasing its surface area. These great swings of elevation provide changing conditions that constantly transition between wet and dry. Adjacent shorelands vary as the water level rises and falls, creating interspersed aquatic areas, wetlands, uplands, saline playas, and mud flats of varying degrees and values. Though the Lake averages an elevation of 4,200 feet, annual fluctuations can cause water level changes of up to two feet. Tracking historic lake levels have revealed drought and flood cycles spanning roughly 30 years. The most recent high water level reached 4,211.6 feet in 1987, and more recently, the historic low water level of 4,191 feet in 1963 (USGS, 2007). Due to the size of the Lake's basin and flat topography, a water level rise of just one foot can add an additional 70 square miles to the Lake surface area. These changes in elevation greatly affect the levels of freshwater and saline habitats on the Lake's shorelands.

A Large Resource

The Great Salt Lake is an important natural feature of the western United States and the largest salt lake in the Western Hemisphere. The Great Salt Lake serves as an important migratory stopover in the central flyway, serving several million birds each year, and in 1992, was designated as part of the Western Hemisphere Shorebird Reserve Network. The Inland Sea Shorebird Reserve, located near the Northwest Quadrant, provides important habitat for many migratory shorebirds. The waters of the Lake can support a large number of insects, bacteria, and macro-invertebrates that find a home in its saline waters, and are a significant food resource for birds and mammals.

Several streams empty into the Lake. These streams create emergent freshwater, saltwater and mixed marsh wetlands and contribute to diked freshwater bays, including Farmington Bay and Willard Bay located north and east of the Northwest Quadrant. The south and west shores of the Great Salt Lake, where the Northwest Quadrant is located, receive little precipitation and little freshwater input from natural rivers and streams, which results in a landscape characterized by saline playas, mud flats, and transition to semiarid upland areas.

Landscape Mix

The edge of the Great Salt Lake lies within the northwestern edge of the Salt Lake Valley, and includes a mix of landscape types, including functional playas, disconnected playas, salt flat edges, freshwater marshes, canals and uplands and evaporative basins.

- ***Functional Playas.*** Functional playas are depressional wetlands that become inundated with great frequency and have obvious and substantial hydrological connections with the Great Salt Lake. Characterized by highly saline conditions, and mostly bare ground, playas are relatively rare. In addition to draining directly into the Great Salt Lake, there may be some instances where micro depressions exist within these playas that may hold water ephemerally, which likely contribute to the playas' hydrology. High- functioning playas are ranked high due to sensitivity and rarity within the planning area.

One of the many landscapes of the Northwest Quadrant

- ***Disconnected Playas.*** Disconnected playas are depressional wetlands that are isolated from the Great Salt Lake and are dry much of the year, but can provide additional flood protection and habitat value. Characterized by a high saline content, mostly bare ground, and vegetated with pickleweed and iodine bush, these playas teem with insects and other macro-invertebrates during the wet season and supply nesting, resting and foraging areas for shorebirds. Disconnected playas are ranked low in sensitivity and quality due to the lack of hydrological connections and the infrequency of inundation.

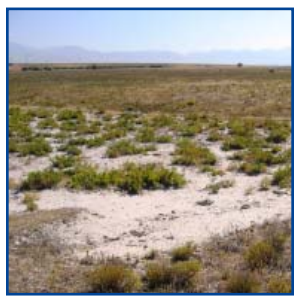
- ***Salt Flat Edges.*** Salt flat edges are also depressional wetlands, but are characterized by hyper-saline soils and contain little to no vegetation in the dense salt crust. Salt flats within the Northwest Quadrant appear to be at least partially inundated on a regular basis.

- ***Freshwater Marshes.*** Freshwater marches are depressional wetlands usually consisting of a wet meadow edge before transitioning to upland vegetation. They are characterized by open water areas with emergent marsh vegetation, such as cattail, bulrush, rushes, and sedges. Within the Northwest Quadrant, freshwater marshes are frequently found in duck clubs, wildlife reserves, agricultural ponds, and along canals, ditches and storm drains. Freshwater marshes can harbor diverse wildlife and vegetation, filter pollutants, slow erosion, and absorb stormwater. Most of these conditions in the Northwest Quadrant have been created and supported artificially by way of irrigation water, and much of the water quality is poor due to the poor quality irrigation water source. Freshwater marshes are ranked medium largely due to existing and potential wildlife use, artificial hydrology and easy recreation.

- ***Canals and Uplands.*** Man-made canals, including the Goggin Drainage, North Point Canal and minor irrigation canals, convey either stormwater or irrigation water within the area. These are typically steep-sided banks surrounded with dense vegetation including common reed and cattail. Artificial in nature, water levels can fluctuate greatly with precipitation events and management of waterways. These channels and canals, however, could be modified to support an adjacent riparian community of trees and shrubs. Canals are ranked low due to the poor water quality, and habitat and reliance on artificial hydrology keep ranking on the low end.

Uplands, while developable, can complement wetlands and portions can sometimes serve as part of the functioning ecological system, offering different vegetation and conditions for species that utilize a mix of resources and habitats, such as pheasant, jackrabbit, red fox, pronghorn antelope, voles, shorebirds and coyote. Their edges buffer wetlands from disturbances and impacts and provide nesting areas and refuge habitat at flood stage.

- ***Evaporative Basins.*** Evaporative basins, while rare in this area, are shallow depressions that receive and hold surface flows ephemerally, appearing to lose water only by evaporation or slow percolation. Unlike disconnected playas, these depressions are mostly vegetated with salt tolerant vegetation dominated by little barley and saltgrass, with pickleweed, alkali mallow, and alkaliweed being the less dominant species. Although their soils are somewhat saline, the concentrations are much less than playas and salt flats. Evaporative basins are commonly found around the Great Salt Lake shorelands, and are highly variable in size and frequency and duration of saturation or ponding. Subsequently, the wildlife values of evaporative basins are highly variable.



An Important Mix

All six of these landscapes, in varying degrees, can be important to the ecosystems found on the southern end of the Great Salt Lake. A varied mix of these lands can be important for regeneration and adaptation. Protecting areas with a mix of these naturally functioning landscape types is important to preserving the character and function of the ecosystem found on the southern end of the Lake.

Protecting Valuable Resources

Great importance has been placed on protecting the resources around the Great Salt Lake, with wetlands and playas playing a primary focus of conservation. Some resource areas have already been protected as part of wildlife reserves, mitigation areas, duck clubs or lands with conservation easements.

Another concern is conserving and protecting valuable water quality resources. Numerous channels and canals run through the Northwest Quadrant. Water conservation is a region-wide concern, and it is important that sufficient water is returned to the Lake's shorelands to help maintain and support the various types of wildlife habitats.

The high water table of these shorelands requires consideration as development continues to avoid significant harmful alterations to groundwater patterns and the overall water regime. The complex

chemistry of this highly saline Lake is an additional consideration, as it impacts what will live both in the Lake and on the land around it. It also shapes the viability of various lake-based industries, including brine shrimping, salt evaporation ponds and chemical extraction, which are contributors to the local economy.

Key development constraints are outlined in the table below. This Northwest Quadrant Master Plan seeks to prevent development in Level I areas and reduce development intensity in Level II areas, where necessary, in order to preserve and protect the natural systems associated with the Great Salt Lake. It is also important to recognize that some infrastructure and/or improvements may be made in these areas to protect and/or enhance these sensitive areas and to facilitate their integration with development areas. Level III constraints acknowledge development will occur in these areas, but recognizes that additional study is likely necessary to determine whether special development conditions may be required.

Enhancement of other, more important wildlife habitat may be a preferable alternative to protection of Level III or even Level II constraint areas. For example, enhancement and restoration of Bailey's Lake may provide much better wildlife habitat in a larger contiguous area than would protection of various smaller wetland or habitat areas elsewhere.

Buffer Toolbox

Protection of these resources needs to be balanced with the development rights of landowners and existing uses, thus creating the need for buffers. Resource buffers are not meant to prevent development, but are specifically designed to protect those resource conditions that are intended to be protected, such as wetlands and wildlife habitat along the development fringe.

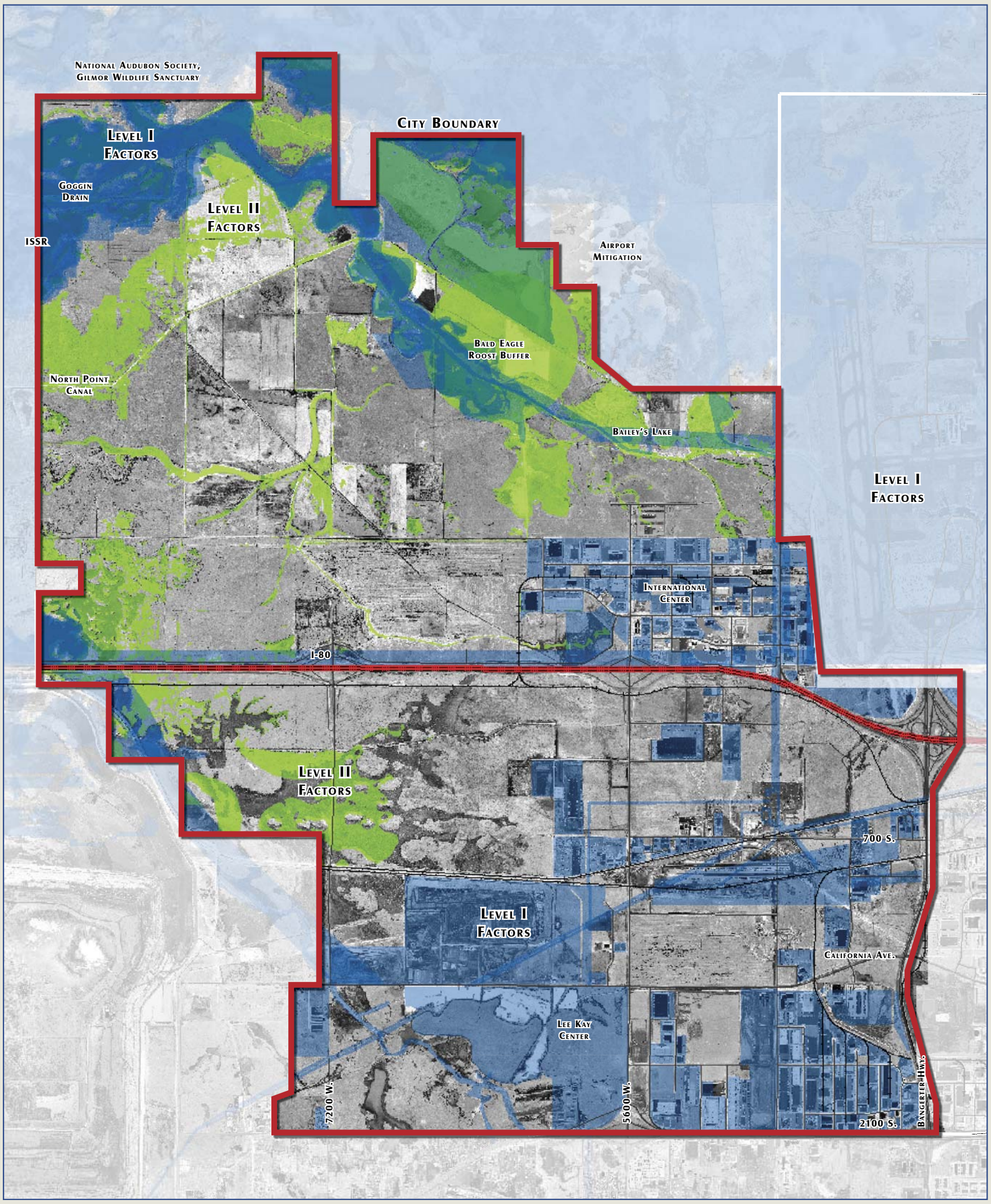
It is expected that impacts to some resources are unavoidable as part of development in the Northwest Quadrant. Impacted resources will require mitigation elsewhere to continue to preserve the natural ecological function and the site's carrying capacity. Resources intended to be protected require buffers to protect them from the effects of adjacent land uses.

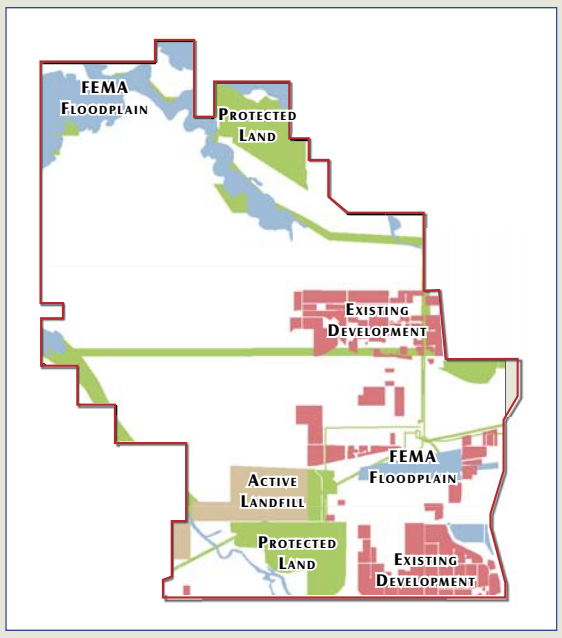
The distance of each buffer is based on a relative scale measuring resource sensitivity and land use type and intensity. The decision-making process for the features of each buffer is illustrated in Figure 11.

The concept of the Buffer Toolbox will provide developers and planners with flexibility while protecting valuable natural resources. By creating resource protection parameters that manage access to sensitive resources and are not the "one size fits all" solution, developers can be flexible to react to market forces and be creative in developing solutions to protect, enhance, and create wildlife habitat. Buffer distance should initially be selected based on the sensitivity and rarity of the resource and the proposed adjacent land use, and then can be reduced by adding other barriers, such as fences and visual screens. A three-step process is outlined on the following pages.

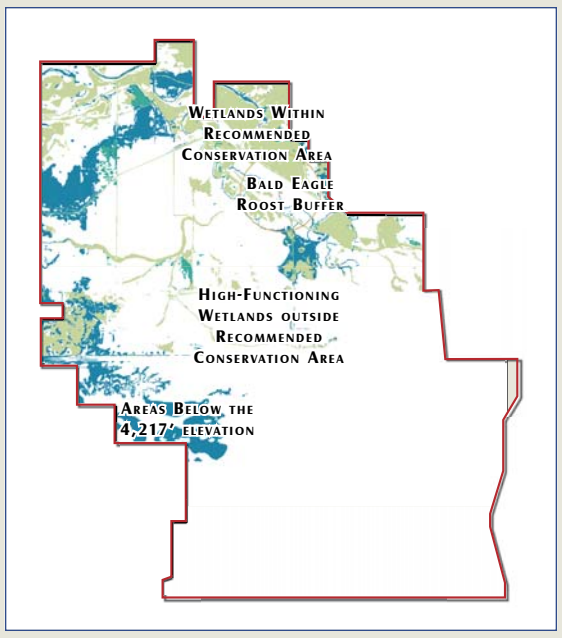
The northwest edge of the City transitions into the Lake basin

LEVEL I FACTORS (AREAS WHERE EXISTING CONDITIONS, RISKS TO DEVELOPMENT, OR RESTRICTIONS BY OTHER GOVERNMENTAL ENTITIES ARE LIKELY TO PRECLUDE SIGNIFICANT ADDITIONAL DEVELOPMENT)	
100-Year Floodplain	A 100-year flood is the flood that statistically has a 1% chance of occurring each year. For land use planning purposes, the regulatory floodplain is usually viewed as all lands within reach of a 100-year flood. The Federal Emergency Management Agency (FEMA) produces floodplain maps, defining what's in and out of the 100-year (or "regulatory") floodplain in order to implement the National Flood Insurance Program. In addition, Salt Lake County Floodplain Hazard Regulations (Chapter 19.74) "prohibits building in flood ways but allows building in the floodplain with adherence to protection standards." Standards include anchoring, flood resistant construction materials, design of utilities to minimize infiltration of floodwaters, residential construction with lowest floor elevated to a minimum of one foot above the base flood elevation, and flood-proofing for nonresidential development below one foot above the base flood level. The 100-year floodplain is shown to occur along much of the northern portion of the Northwest Quadrant as well as extending into the northern portion of Goggin Drain. The Surplus Canal and the Great Salt Lake have not yet been mapped for FEMA flood insurance purposes. The Northwest Quadrant will need additional study to determine floodways and floodplains.
Below 4,215' Elevation	The water surface elevation of 4,212 feet above sea level represents the recorded historic high water elevation for the Great Salt Lake, which occurred in 1986 and 1987. During this period, pumping by the West Desert Pumping Station occurred to lower the lake's surface water elevation. Water levels also reached this elevation in 1866 and 1867. The historic low water elevation for the period of record (1845-present) was recorded in 1965 at an elevation nearly 20 feet lower at 4,191 feet above sea level. The current water surface elevation is approximately 4,196.5 feet. Wind and wave action may pose a hazard risk five feet or more above the historic high water elevation, making the hazard risk elevation 4,217 feet. Salt Lake City does not permit habitable development below elevation 4,217 feet.
Developed Parcels	Existing development (commercial and industrial uses) is located primarily in the eastern portion of the Northwest Quadrant.
Protected Lands	Protected lands include the lowland portions north of the Bailey's Lake Meadow Mitigation Bank and the Airport Wetland Mitigation Site.
Major Transportation Facilities	Major transportation facilities in the Northwest Quadrant include a six-mile section of Interstate 80 that runs east-west through the center of the Northwest Quadrant, and two railway lines (Western Pacific and Union Pacific Railways) that run east-west across the lower third of the Northwest Quadrant, as well as a regional hub. Salt Lake International Airport is located immediately adjacent to the east of the Northwest Quadrant.
LEVEL II FACTORS (AREAS IN WHICH DEVELOPMENT WILL OCCUR, BUT WHERE IT MAY BE REGULATED OR WHERE SOME DEVELOPMENT ACTIVITY MAY REQUIRE MITIGATION)	
Utah Sensitive Species	Species included on the Utah DNR's Utah Sensitive Species List.
High-Functioning Wetlands Systems	These areas include the highest functioning wetlands preliminarily identified through the Functional Assessment of Wetlands and Wildlife (SWCA, 2006). These wetland areas tend to be below the 4,217-foot elevation, within the recommended conservation area, near other sensitive wildlife habitat, and in closest proximity to the Great Salt Lake. Wetland types found in the Northwest Quadrant include: open water, emergent marsh, wet meadow, transitional wet meadow and playas. Various waterbirds, wading birds, shorebirds and several raptor species use these habitats for foraging. Much of the northern boundary of the Northwest Quadrant is located in an area identified by the Utah Division of Wildlife Resources as wetlands of state importance for a number of different animal and plant species. Additional study should be encouraged to identify the specific locations of high-functioning wetlands.
Between 4,215'-4,217' Elevation	In some areas, wind caused wave and ice action may pose a hazard risk up to the elevation 4,217 feet (based on historic high lake level of 4,212 feet). These elevations are used by Salt Lake City as limits to development. City code allows fill on land above 4,215 feet to bring the elevation up to 4,217 feet. Fill of areas between the 4215 – 4217 elevations should only be permitted in areas approved for development.
LEVEL III FACTORS (AREAS IN WHICH DEVELOPMENT WILL OCCUR, BUT WHERE ADDITIONAL STUDY OR SPECIAL DEVELOPMENT CONDITIONS MAY BE NECESSARY)	
Wildlife Habitats	Key habitats include: • Significant large areas of developable uplands. • Nesting colonial wading and waterbirds, which include western grebe black-crowned night-heron, white-faced ibis, Forster's tern and black tern. These species are found in the area of the Airport Wetland Mitigation Site, Goggin Drain, and Bailey's Lake. • Nesting colonial shorebirds include nesting black-necked stilts and American avocets. These species are found in areas of mudflats, inundated playas, wet meadow, and partially vegetated playas in the Goggin Drain and Bailey's Lake area, but which will need to be confirmed through further study. • Areas of significant concentrations of migrating shorebirds to be determined by Developer through further study, which may be found in the area of Bailey's Lake, Goggin Drain, and the Airport Wetland Mitigation Site. • Areas of significant concentrations of migratory waterfowl, including geese, ducks, grebes, and coots to be determined by Developer through further study, may be found in the area of the inundated playa complex near the KSL radio towers, open water areas in the area of the Airport Wetland Mitigation Site, Goggin Drain, Bailey's Lake, and in the Lee Creek drainage area. • Areas of significant concentrations of migratory wading birds, including egrets and white-faced ibis to be determined by Developer through further study, which may occur in playas, wet meadows, mudflats, and intermittent open water in the area of Goggin Drain and Bailey's Lake. • Significant concentrations of other regionally important and unique species to be determined by Developer through further study, which include: snowy plover in the playas adjacent to Lee Creek; migrating swallows on mudflats in the northeast portion of the Northwest Quadrant; and peregrine falcon. • Lee Creek is also likely to be used as a wildlife corridor for a variety of terrestrial animals. • Sensitive habitats include portions of playas that cannot be recreated.
Other Wetlands Systems	These areas include wetlands not classified as high-functioning according to the Functional Assessment of Wetlands and Wildlife (SWCA, 2006).
Channels and Canals	Channels and canals in the Northwest Quadrant carry irrigation, storm, artesian well, and treated wastewater toward the Great Salt Lake. Channels and canals include the Surplus Canal, North Point Consolidated Canal, Bailey's Lake, Goggin Drain, West Branch, Brighton Drain, and Lee Creek. A series of connected paleo channels are present in the central portion of the Northwest Quadrant north of Interstate 80, and appear to have historically been connected to the Jordan River. Channels and canals are often associated with wetlands, which occur along their margins.
Open Space Zoning	The purpose of the OS open space district is to preserve and protect areas of public and private open space and exert a greater level of control over any potential redevelopment of existing open space areas.
Airport Zoning A & B	Salt Lake International Airport is located immediately east of the Northwest Quadrant. The eastern half of the Northwest Quadrant is mapped as a moderate/high noise impact zone.
Lowland Conservancy Overlay District	A lowland conservancy district was established by Salt Lake City to provide for the protection, preservation, proper maintenance, and use of Salt Lake City's watercourses, lakes, ponds, floodplain, and wetland areas. Areas under this designation generally require a residential no-build setback of 25 feet; a nonresidential setback of 50 feet for water bodies such as streams, lakes, ponds, and wetlands; and require a natural vegetation strip of 25 feet. The setback is from the boundary line or from the banks of the river. Wetlands and other water features mapped under this Salt Lake City regulation are found at several locations across the northern half of the Northwest Quadrant. These areas are associated with margins of wetlands associated with Salt Lake, in the locations of paleo channels and as isolated wetland areas. Overlay District areas can be found as either emergent wetlands or as playas.
Landfills	3 closed landfills are located north of Interstate 80 at its intersect with 7200 West north of California Avenue between 4800-5600 West and a portion of the Lee Kay Center property adjacent to California Avenue. The West Branch Canal flows through the closed landfill area north of Interstate 80. The Salt Lake City/County landfill located north of the Lee Kay Center is an active landfill.

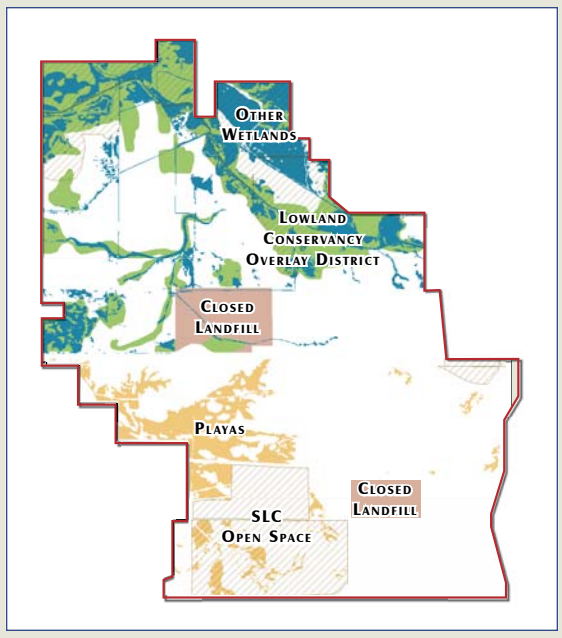




Level I Factors



Level II Factors



Level III Factors

Figure 10. Illustrative Constraints Map with Level Breakdowns

Determining Buffer Distance

Step 1. Analysis

Element 1. Site Resources & Ecological Sensitivity.

An ecological assessment of the Northwest Quadrant should be conducted prior to development. The assessment should include a characterization of natural resources and identify the six specific habitat types identified above under Landscape Mix.

The analysis should assess habitat to determine the presence of state or federally sensitive, threatened or endangered species, and should identify sensitive habitats and lands intended to be left undeveloped. A wetland delineation should be conducted to determine jurisdictional wetlands, non-mitigatable resources, restoration projects, and mitigation recommendations. A determination of the importance and sensitivity should be included in the assessment.

Element 2. Proposed Land Use

Based on a conceptual land use plan, land use types, square footage, units, density, and intensity (including hours of operations) should be provided. The conceptual land use plan should also identify open space, parks, and trails. Since these lands are often located in the Conservation Development Zone the plan should summarize how the purposes of the Conservation Development Zone are met or exceeded. Each land use should be identified as a high, medium or low impact intensity.

Element 3. Mix of Barrier Options

Buffers should be designed to discourage domestic pet and human trespass in the Natural Areas. Buffers are composed of a variety of features, including, but not limited to, the following:

- Natural Features/Open Space
- Vegetation
- Vegetative Screens
- Restoration Areas
- Fences
- Roads
- Trails
- Berms
- Moats
- Signage
- Land Use Design

Step 2. Buffer Recommendation, Mitigation & Management

Buffers are an important component of protecting wetlands and other aquatic resources. Salt Lake City is being proactive in developing buffers to protect the function and quality of the wetlands that will be preserved along the development fringe, and to be consistent with the Northwest Quadrant Vision.

Existing playas within the Northwest Quadrant

The protection of wetland and playa values requires the conservation of some surrounding land as buffers. Wetland buffers are important for quality improvements, stream bank stabilization, flood control, wildlife habitat and groundwater recharge. The four primary criteria that should be considered when determining wetland buffers are:

- Resource functional value
- Intensity of adjacent land use
- Buffer characteristics
- Specific buffer functions

Vegetated buffers can improve erosion control; remove sediment, excess nutrients and metal; moderate stormwater runoff and temperatures; maintain habitat diversity; and reduce the effect of human impacts.

Upland resources can sometimes be used to buffer productive wetland and aquatic resources from the effects of human development and associated activities. Development within the Conservation Development Zone may also contribute toward the effectiveness of buffers. Buffers for wildlife are much more difficult to define than for water quality, since they are based on individual and flock behavior. These terms are used for the measuring of the distance at which animals respond to a certain type of disturbance, such as approaching pedestrians or vehicles.

The size and nature of the recommended buffer shall be a function of both the sensitivity of the resource to be protected, and the intensity of the proposed land use, as illustrated in Figure 11. The buffer analysis should therefore summarize the level of ecological sensitivity, the proposed land use, and the proposed barrier types.

As a general rule, buffers based primarily on natural features and open space should be sized within the following ranges:

- Small Buffer: 50 feet to 300 feet
- Medium Buffer: 300 feet to 600 feet
- Large Buffer: 600 feet to 900 feet

Buffer sizes may be reduced by the use of additional barrier features.

The recommendations should identify lands to be left undeveloped, mitigation recommendations, restoration activities, and management considerations.

The buffers should ideally be vegetated with native vegetation, either upland, riparian, wetland, or a combination of each. The vegetation needs to be dense enough to provide the water quality and visual buffer required to support the continued function of the protected resource.

Step 3. Jurisdictional & Agency Review & Concurrence

Salt Lake City, state and federal agencies, landowners and developers will review the buffer recommendation reports. They may concur with the assessment, provide comments or request additional studies, which could include species-specific surveys. Based on resulting information, final buffer recommendations, barriers, protected lands, mitigation and restoration activities, and management recommendations can be mutually agreed upon.

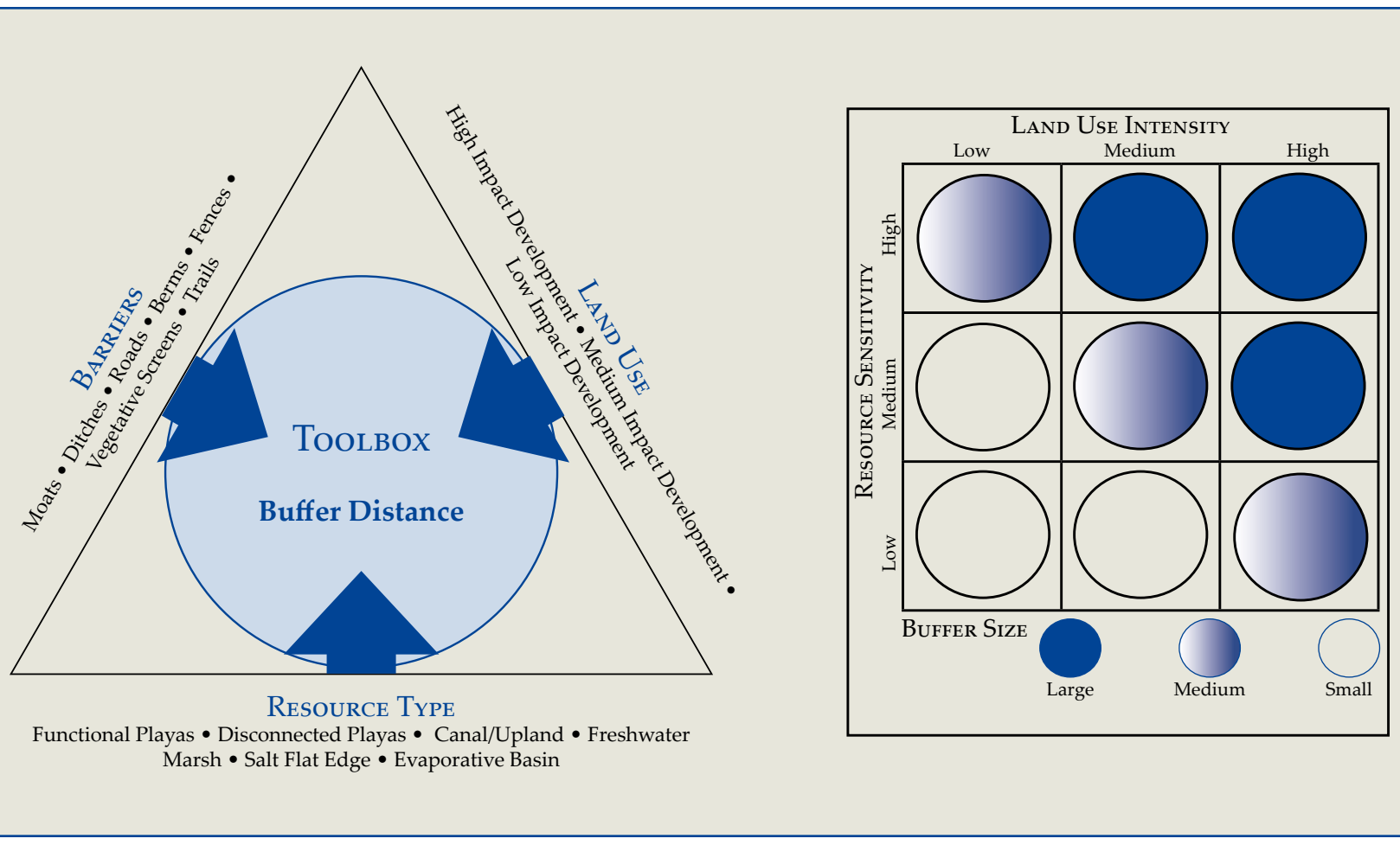
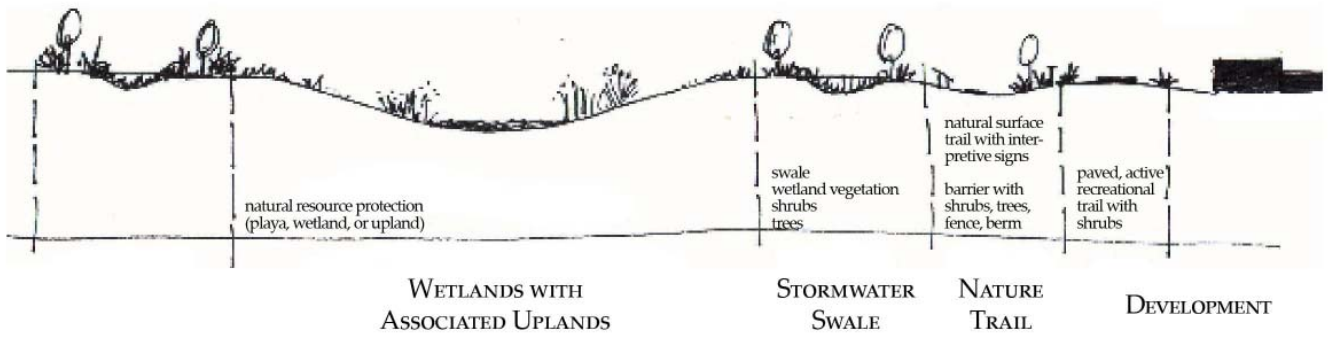


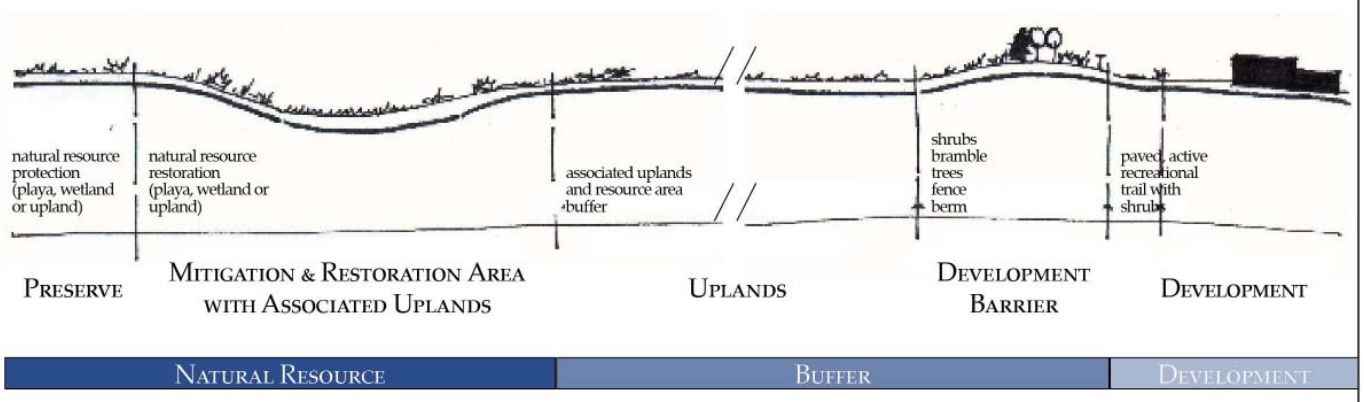
Figure 11. Resource Protection Decision-Making Matrix and Toolbox

Small Buffer Example



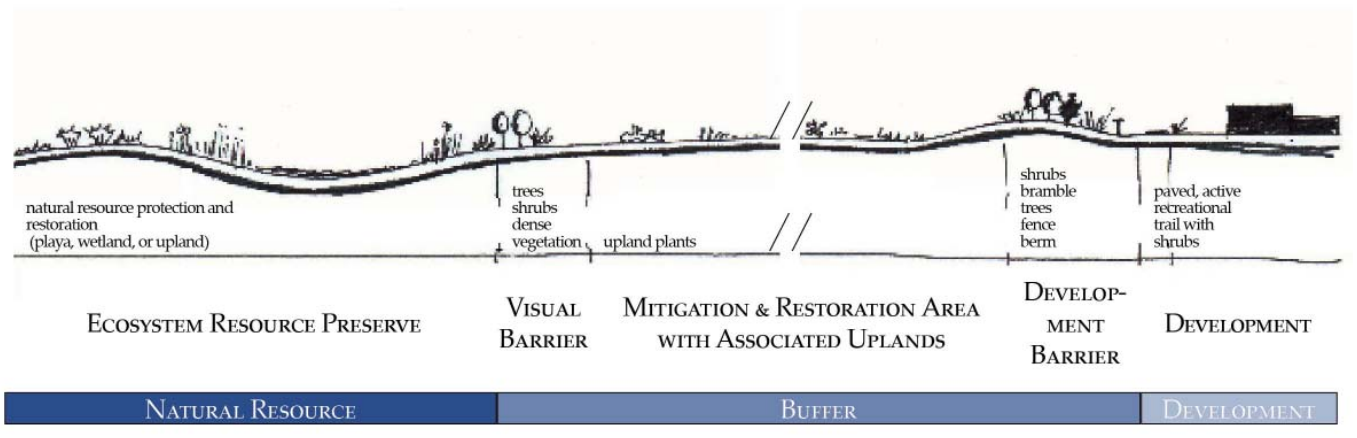
Note: Not to scale.
Horizontal and vertical scale are exaggerated.

Medium Buffer Example



Note: Not to scale.
Horizontal and vertical scale are exaggerated.

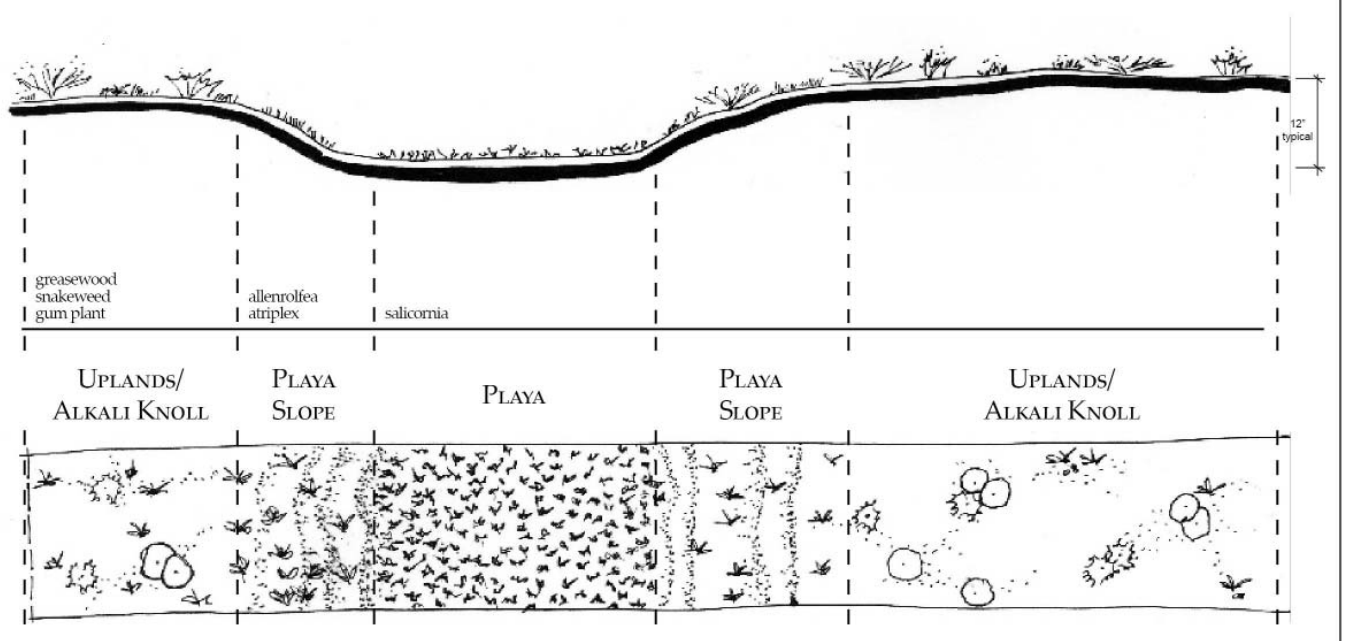
Large Buffer Example



Note: Not to scale.
Horizontal and vertical scale are exaggerated.

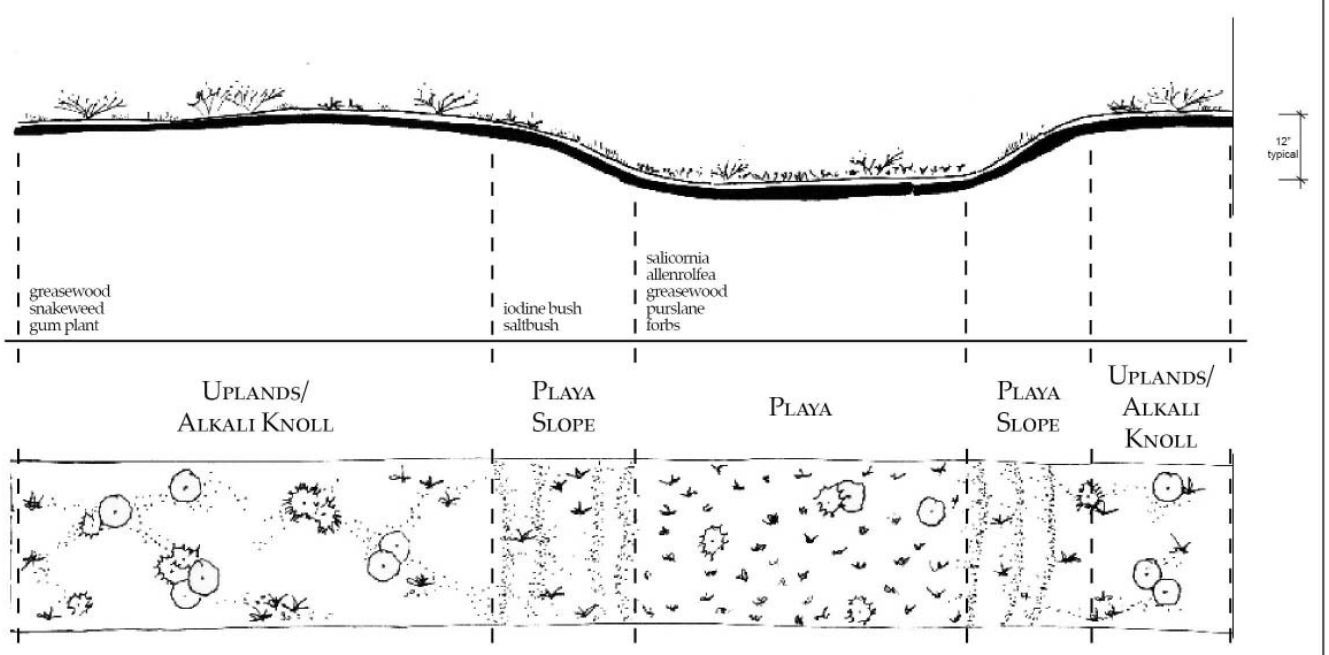
Figure 12. Examples of small, medium and large buffer distances and features

Functional Playa



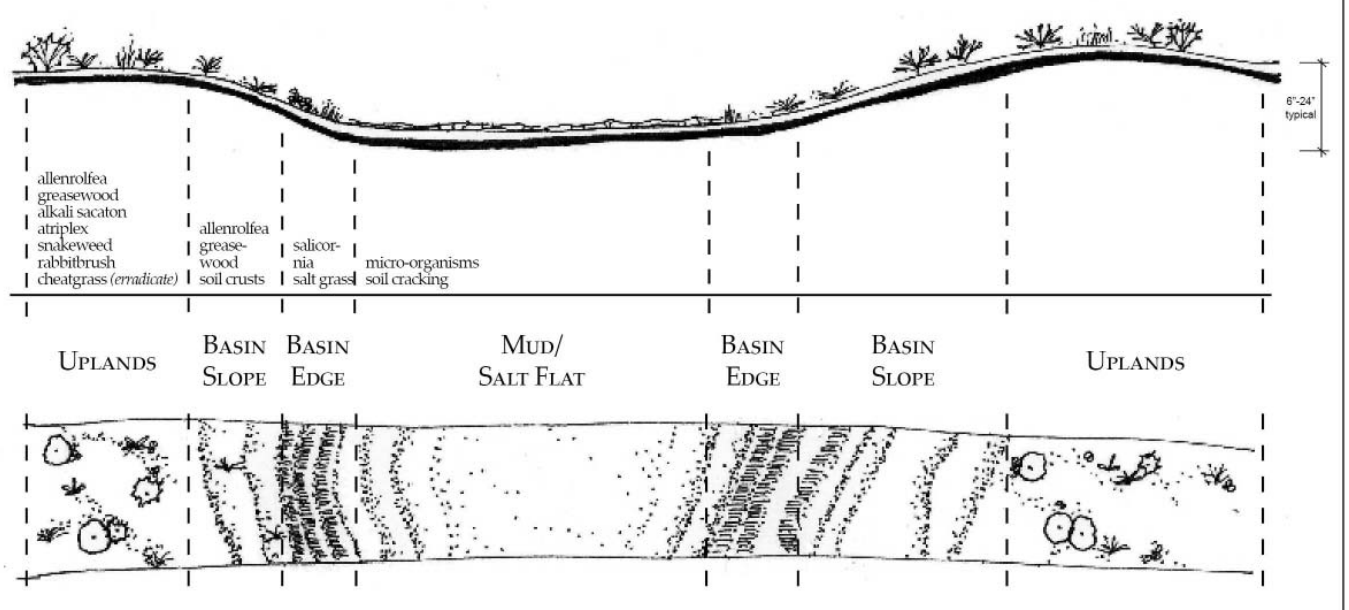
Note: Not to scale.
Horizontal and vertical scale are exaggerated.

Disconnected Playa



Note: Not to scale.
Horizontal and vertical scale are exaggerated.

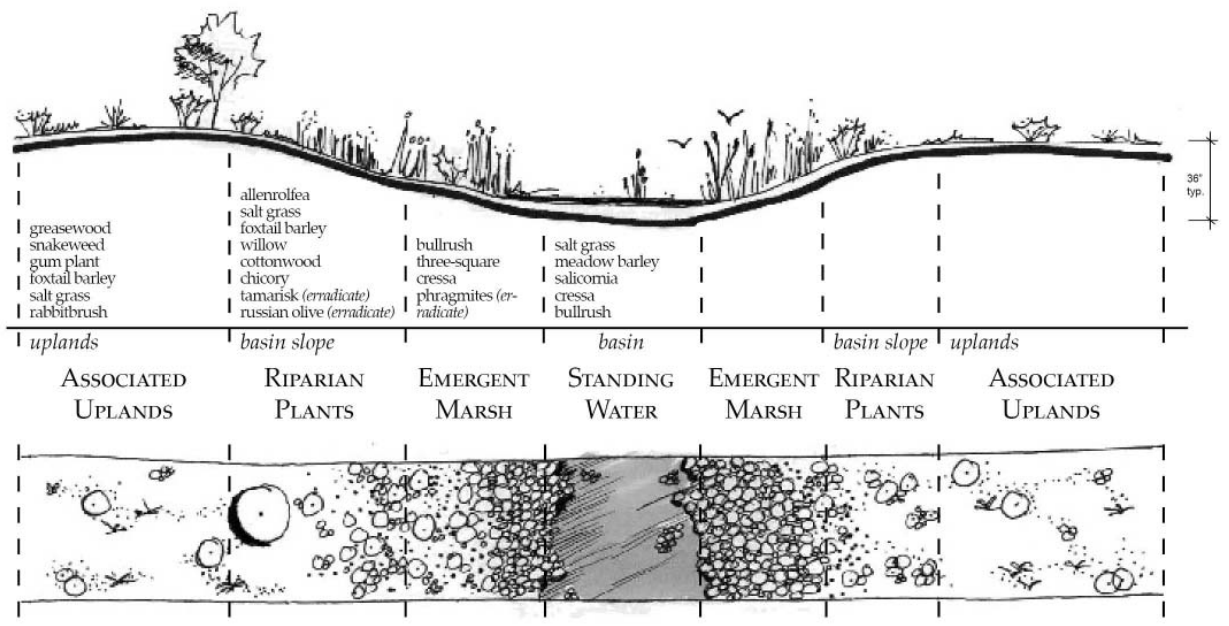
Salt Flat Edge



Note: Not to scale.
Horizontal and vertical scale are exaggerated.

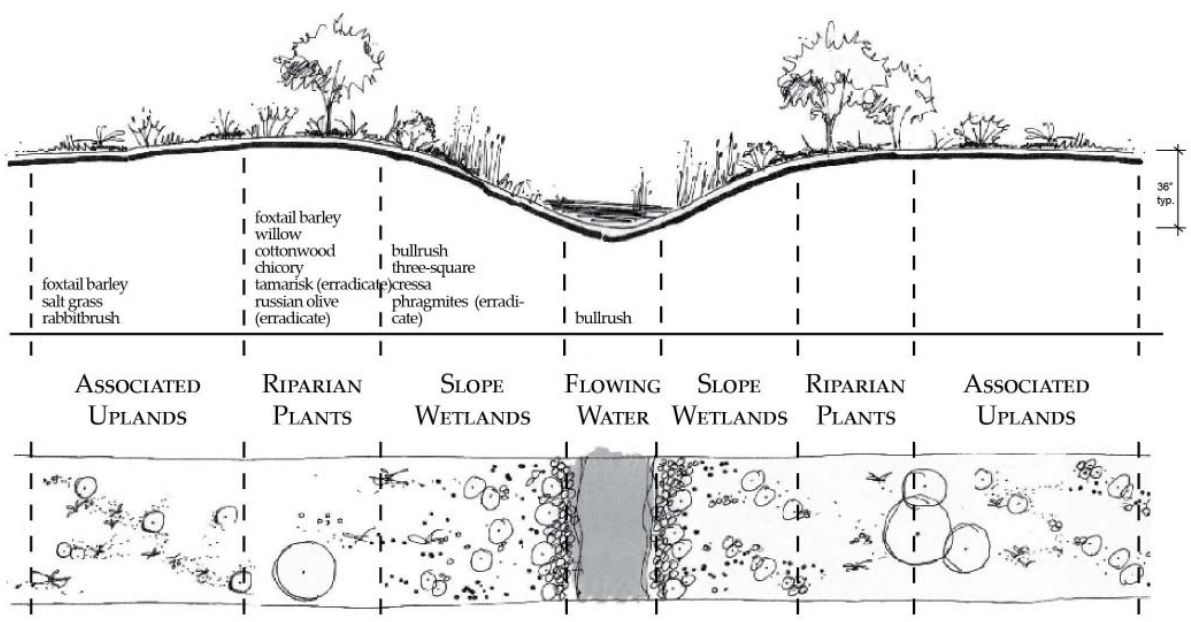
Figure 13. Site resources specific to the Northwest Quadrant (For illustrative purposes only. Determination regarding these features can only be completed by a trained consultant.)

Freshwater Marsh



Note: Not to scale.
Horizontal and vertical scale are exaggerated.

Channel/ Canal & Uplands



Note: Not to scale.
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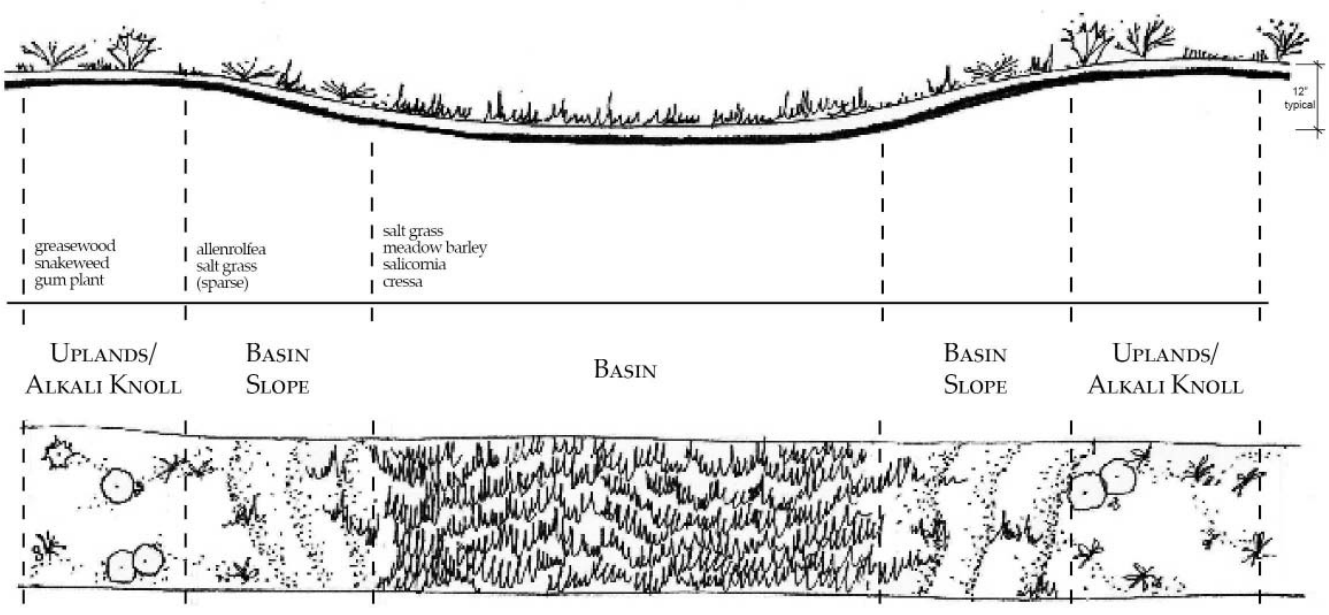
Evaporative Basin



Note: Not to scale.
Horizontal and vertical scale are exaggerated.

Figure 13 (continued). Site resources specific to the Northwest Quadrant (For illustrative purposes only. Determination regarding these features can only be completed by a trained consultant.)

Acknowledgements

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Jay Nelson, *AECOM Transportation*

Key Resource Documents
Envision Utah Study; Utah Values and Future Growth, 2007
Functional Assessment of Wetlands and Wildlife in the Salt Lake County SAMP Area,
RCLCO Wasatch Front Development Trends Study, 2007
Salt Lake City Bicycle and Pedestrian Master Plan, 2004
Salt Lake City Open Space Plan, 1992
Salt Lake City Transportation Master Plan, 2006
Salt Lake County Shorelands Plan, 2003
Wasatch Choices 2040

Additional Resources
Robert Charles Lesser, Corporation
Harris Interactive
Envision Utah
West Salt Lake Transit Study

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City Council Adoption Date: