

# 2022 Northwest Quadrant Sustainability Action Study

## Executive Summary

Prepared for the Utah Inland Port Authority by CPCS



# Why Conduct a Sustainability Action Study?

The purpose of the Utah Inland Port Authority’s (UIPA’s) Sustainability Action Study (SAS) is to explore opportunities to advance sustainable development within its jurisdictional area, an area covering the Northwest Quadrant of Salt Lake City, as well as parts of northern West Valley City and Magna. The SAS is a strategic document articulating a sustainability vision and how this vision can be integrated into various decision-making levels.

The UIPA jurisdictional area offers a large amount of undeveloped land located near multimodal transportation facilities, representing both an opportunity and a challenge. The area has experienced recent growth in freight activity, a trend that is expected to continue over the coming decades alongside regional population growth and increasing e-commerce demand. However, portions of the jurisdictional area include environmentally sensitive lands, such as migratory bird nesting areas and other wildlife habitats, critical natural and water resources, open space, and other important features. It is thus necessary to balance industrial development in the area with sustainable strategies to mitigate any resulting adverse environmental or quality-of-life impacts.

The SAS will incorporate the vision found within enabling legislation and information/strategies identified in the Strategic Business Plan 2022, Salt Lake City Northwest Quadrant Master Plan 2016, and Salt Lake County West General Plan 2022 to establish sustainability strategies for the 16,000-acre jurisdiction, assess options and costs for battery electric and hydrogen fuel cell technologies and identify innovative financing models for technology adoption.

Sustainability is at the heart of all UIPA’s partnerships, programs, and policies in the inland port jurisdictional area. While UIPA does not have land use authority in the jurisdictional area, UIPA is committed to realizing its sustainable development potential through coordination with all relevant public and private stakeholders in the region. At a high level, the UIPA framework for sustainable development consists of green, resilient, and equitable themes, each with distinct objectives and dimensions (Figure 1).

The enabling legislation (House Bill 443) supports UIPA’s mission of improving the economic competitiveness of the region and state by facilitating smart, sustainable logistics-related development projects within its jurisdictional area that:



Respect the area’s existing natural environment & land use conditions



Support the continued growth of the state’s economy



Improve air quality and minimize resource use



Work in concert with & coordinate efforts of all applicable stakeholders



Develop incentives to encourage green technology adoption in supply chain



Implement world-class, state-of-the-art, zero-emissions logistics

**FIGURE 1: UIPA’S SUSTAINABLE DEVELOPMENT FRAMEWORK**

Theme	Objective	Dimension
<b>Green</b>	Carbon neutrality and net zero emissions should be the aim of all inland port area developments.	Carbon Neutrality, Net Zero Emissions, Reduction in Criteria Air Pollutant Concentrations, Balanced Natural Resource Use
<b>Resilient</b>	Developments should be purpose-built and increase the capacity of the inland port area to withstand social, economic, supply chain, and environmental events	Impact Assessments, Hazard Mitigation
<b>Equitable</b>	Communities affected by inland port area developments should be intentionally consulted as part of planning processes to promote accessibility, economic opportunity, connectivity, health, safety, and quality of life.	Civic Participation, Environmental Justice



# What Is UIPA’s Sustainable Development Framework?

The UIPA framework for sustainable development is threefold:

- **Green:** carbon neutrality and net zero emissions should be the aim of all development within the UIPA jurisdictional area. Through the identification and preservation of ecological zones surrounding the jurisdictional area, UIPA can encourage balanced development and pursue policies to avoid or minimize negative environmental and health impacts. Greenhouse gas analyses and sustainable development targets will also guide UIPA’s business partnerships as the port looks for developers that are willing to implement emissions reduction technologies.

**Indicators:** Carbon Neutrality, Net Zero Emissions, Reduction in Criteria Air Pollutant Concentrations, Balanced Natural Resource Use

- **Resilient:** developments should be purpose-built and increase the capacity of the inland port area to withstand social, economic, supply chain, and environmental events. Limiting negative development impacts on the natural environment and local communities will be essential to long-term success of the project area. Land use strategies, therefore, will encourage dense and diverse development that makes for an efficient port with minimal ecological impact.

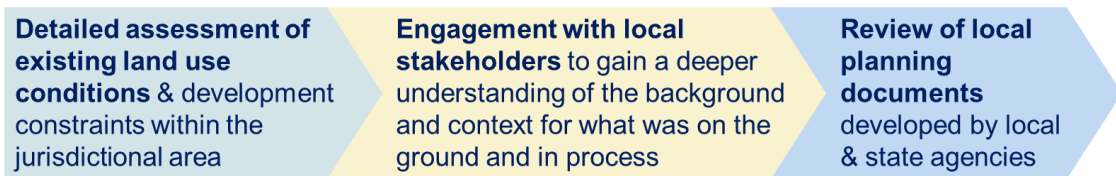
**Indicators:** Impact Assessments, Hazard Mitigation

- **Equitable:** communities affected by inland port area developments should be intentionally consulted as part of planning processes to promote improved accessibility, economic opportunity, connectivity, health, safety, and quality of life. Development should aim to integrate the jurisdictional area, the natural landscape, and local communities while creating the necessary environmental buffers. The creation of open spaces, multi-use employment, and clustering development all play a role in UIPA’s efforts to meet this standard.

**Indicators:** Civic Participation, Environmental Justice



UIPA developed sustainability strategies as a part of the SAS. Strategies are high-level actions for which UIPA can develop tactics in conjunction with various public, private, and non-government organization partners that support their implementation. The SAS uses three elements to arrive at recommended sustainability strategies that adhere to the green-resilient-equitable framework:



Informed by the above elements, the SAS’s sustainability strategies are established based on the following key assessments:

1. **Carrying capacity assessment** of the built and natural environment’s ability to accommodate development. The carrying capacity assessment conducted in this Study provides a compilation of the challenges the sustainability strategies should address and guides the development of those strategies.
2. **Zero-emission technology assessment** to provide options and associated costs and benefits of implementing new and emerging vehicle and equipment technologies. This assessment guides UIPA’s decisions regarding investments in transformative technologies that reduce air emissions and contribute to air quality and energy efficiency improvements.



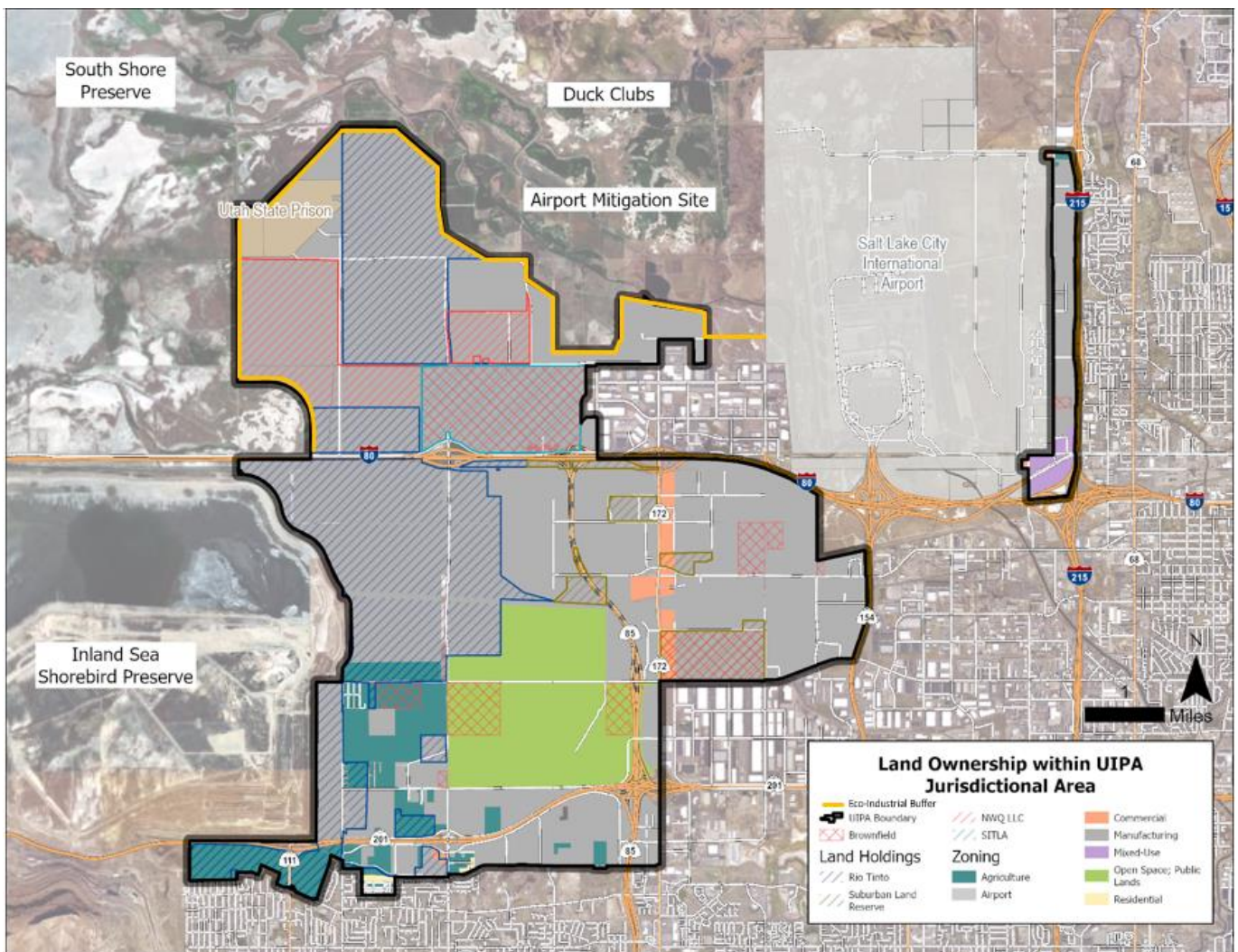


# What Are the Existing Conditions in the UIPA Jurisdictional Area?

The UIPA jurisdictional area covers approximately 16,000 acres in the Northwest Quadrant of Salt Lake City, as well as parts of northern West Valley City and Magna (Figure 2). This is an immense area significantly larger than well-known, large US maritime ports – almost twice the size of the Port of Los Angeles and 11 times the size of the Port of Savannah – and with this comes both a responsibility and an opportunity to identify the highest and best uses in developing a next-generation, sustainable inland port.

Approximately 31 percent of the UIPA jurisdictional area is developed; 24 percent is dedicated non-developable open space, active landfill, eco-industrial buffer, or mining buffer; 7 percent is pending remediation; 5 percent is existing roads or railways; and another 7 percent is planned for development. The remaining 26 percent is undeveloped land. The majority of land within the jurisdictional area (approximately 81%) is zoned for industrial or commercial use, while the rest is zoned for agricultural/open space, and other mixed uses.

**FIGURE 2: LAND OWNERSHIP WITHIN THE UIPA JURISDICTIONAL AREA**



Four focus areas are used to assess the existing conditions in the UIPA jurisdictional area: air quality and energy, natural areas and stormwater management, transportation system, and land use. Understanding the existing conditions through these lenses and the development constraints and opportunities they present provides a baseline for establishing sustainable strategies.

## Air Quality & Energy



There is a mix of utility development in the jurisdictional area.

- The area is in nonattainment for ozone, sulfur dioxide, and fine inhalable particles, with diameters that are generally 2.5 micrometers and smaller (PM<sub>2.5</sub>)<sup>1</sup>, meaning that the amount of these pollutants in the air is in excess of the maximum levels set in the national standards.
- The planned and ongoing developments inside the UIPA jurisdictional area can increase overall emission levels unless the investments are directed toward net-zero emission goals.
- Several natural gas transmission and distribution lines are present within the jurisdictional area. Rocky Mountain Power (RMP) owns land parcels and easements within the UIPA jurisdictional area.

## Natural Areas & Stormwater Management



Some jurisdictional area land is not developable due to environmental sensitivity and ongoing mining and landfill operations.

- Portions of the land north of I-80 provide habitat for wildlife and migratory paths for birds, including the threatened, yellow-billed cuckoo<sup>2</sup>.
- Stormwater management is critical as the soil is conducive to runoff rather than infiltration, and Utah is the Nation's second driest state.
- There are parcels located in or adjacent to wetlands that may benefit from improvements in drainage systems to Great Salt Lake.
- A Stormwater and Drainage Master Plan is critical to further investigate these challenges and establish recommendations.

## Transportation System



The current transportation network in the jurisdictional area will require enhancements.

- I-80 and the Union Pacific railroad provide access to and through the area. Additional arterials are needed to connect future developments to the existing system.
- There are limited transit services in the area, but there are regional and statewide plans to improve access to public transportation (Mountain View express bus; light rail or rapid bus service between Tooele and Salt Lake City).
- There are numerous ongoing or planned projects to improve mobility and accessibility in the area.

## Land Use



Approximately 87 percent of the jurisdictional area is held by the private sector:

- Primary private landholders are Rio Tinto-Kennecott, NWQ, LLC, School and Institutional Trust Lands Administration (SITLA), Suburban Land Reserve and Property Reserve.
- 81 percent of the jurisdictional area is zoned for industrial or commercial development; 18 percent is zoned for agriculture and open space. The remaining 1 percent is dedicated to residential or mixed-use zones.
- Of the UIPA jurisdictional area's roughly 16,000 acres, approximately 31 percent is developed; 24 percent is dedicated non-developable open space, active landfill, eco-industrial buffer or mining buffer; 7 percent is pending remediation; 5 percent is existing roads or railways; and another 7 percent is planned for development. The remaining 26 percent is undeveloped land.

<sup>1</sup> EPA, Green Book, Current Nonattainment Counties for All Criteria Pollutants, accessed 2022: <https://www3.epa.gov/airquality/greenbook/anc1.html>

<sup>2</sup> U.S. Fish & Wildlife Services Environmental Conservation Online System (ECOS), accessed 2022: <https://ecos.fws.gov/ecp/species/3911>





# What are the Key Carrying Capacity Considerations in the UIPA Jurisdictional Area?

The key carrying capacity considerations in the UIPA jurisdictional area are developed based on how natural environment and resources, water resources, transportation system characteristics, air quality and energy usage and access considerations impact land use development. Understanding the interrelations between these factors and land development is critical for the implementation of effective sustainability strategies.

**Carrying capacity is the ability of the built and natural environment of an area to accommodate development.**

Some of the key takeaways from the carrying capacity assessment are as follows:

## **Air Quality and Energy:**

The area is in nonattainment with the national standards for ozone, sulfur dioxide, and PM2.5, which means air quality improvements are crucial:

- Development has the potential to exacerbate emissions, but developers can mitigate this by adopting sustainability strategies, and businesses operating in the jurisdictional area can deploy zero- and near-zero emission technology.
- A key objective for UIPA is switching from conventional gasoline and diesel fuels to zero- and near-zero-emission fuels in the heavy-duty vehicle sector.
- Due to the anticipated shift from conventional energy sources to electricity for transportation operations, energy demands are expected to exceed supply, indicating a need for utilities to increase energy production, ideally using clean and renewable sources.

## **Natural and Water Resources:**

A number of natural resources and limited water resources may impose constraints on sustainable development in the jurisdictional area:

- Portions of the jurisdictional area are adjacent to the Utah Watershed Restoration Initiative focus area, and some parts of the area are also included in the National Wetland Inventory. These designations may impact the nature of development in the areas and have the potential to be considered candidate locations for low-impact development, use of environmental protection buffers, or other conservation treatments.
- Important natural areas are located in the jurisdictional area, including national wetlands, bird nesting areas, and wildlife habitats.
- Predominance of soil with poor natural drainage, conducive to runoff rather than infiltration, makes stormwater management a critical consideration for development considering that Utah is the Nation's second driest state.

## **Transportation:**

The demand for transportation is expected to increase in the jurisdictional area:

- With the expected increase in passenger vehicle and truck trips in the future, road mobility will need to be addressed with sustainable transportation strategies.
- Adoption of zero-emission vehicle and equipment technologies can help reduce current emission levels and mitigate the impacts of future growth in traffic and industrial activity. However, widespread adoption of such technologies depends on several considerations, including vehicle pricing and availability timeline, charging and fueling infrastructure availability, and the presence or lack of regulations.

## Land Use:

UIPA's jurisdictional area has the scale and flexibility to accommodate a diversity of land uses centered around industrial activities while not compromising the surrounding ecological systems. Three key elements considered for ensuring balanced, sustainable land development in the jurisdictional area are:

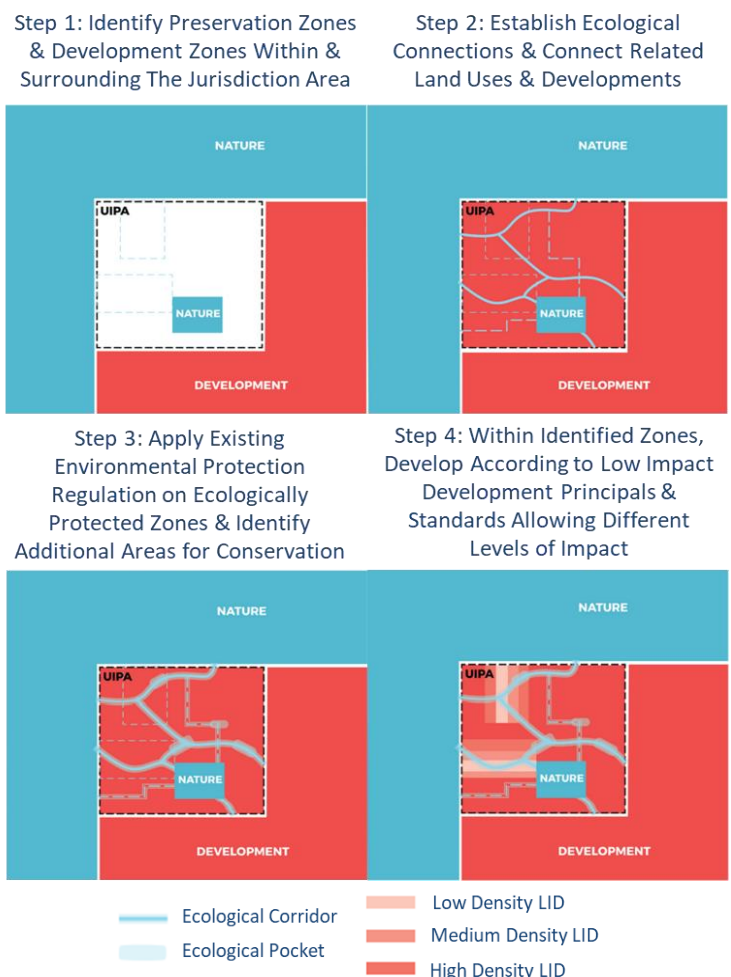
- **Land use planning based on landscape ecology** works with natural patterns and interactions within an ecosystem or region. Landscapes are made up of areas of habitat and connective elements such as rivers, canals, and stretches of natural land located along critical features that maintain the integrity of the landscape's ecological health. Development activities need to consider these landscapes and avoid fragmenting ecological systems. In turn, healthy and functioning ecological systems can empower economic value, for instance, strengthening tourism, recreation and agriculture sectors and providing efficiencies by adding diversity of vitality and support for maintenance over time.
- **Industrial land use planning with a focus on development essential for a logistics port to function** while preserving the critical habitats and habitat linkages and limiting adverse impacts on the environment and communities' quality of life.
- **Human and landscape connectivity** must be designed to maintain linkages within the jurisdictional area and outside of it. Thus, transportation assets should be organized along coordinated corridors to consolidate and limit adverse effects, sensitively developing infrastructure such as overpasses, roads, and bridges that maintain habitat and water flow, and leveraging technology to help in moving people and goods efficiently and sustainably.

UIPA's schematic land development framework is established based on these three key considerations to inform master planning in the jurisdictional area and help mitigate potential negative effects caused by development. The process for the creation of a land development framework is shown in Figure 3.

In the first step, general areas of development and areas that would require preservation are identified. Next, ecological connections are taken into account to mitigate the impacts of development on paths that allow for wildlife movement between preservation areas. Existing state and federal environmental protection regulations are also considered to identify areas in need of preservation or conservation. Finally, development guidelines are set based on proximity to preservation and conservation areas.

Development principles are an essential part of UIPA's sustainability framework, as they establish a platform for reducing technical barriers to coordinated development and promote voluntary use of sustainability strategies. These principles are shown in Figure 4 and are established based on Low Impact Development (LID) principles. LID refers to the combination of land planning, site design, and construction practices that aim to conserve and protect natural resource systems while reducing infrastructure costs. The resulting schematic land use development framework focuses on patches of habitat connected by corridors of water or native vegetation as high-value areas to protect.

**FIGURE 3: SUSTAINABLE LAND USE DEVELOPMENT FRAMEWORK PROCESS**



**FIGURE 4: SCHEMATIC LAND USE DEVELOPMENT FRAMEWORK FOR THE UIPA JURISDICTIONAL AREA**

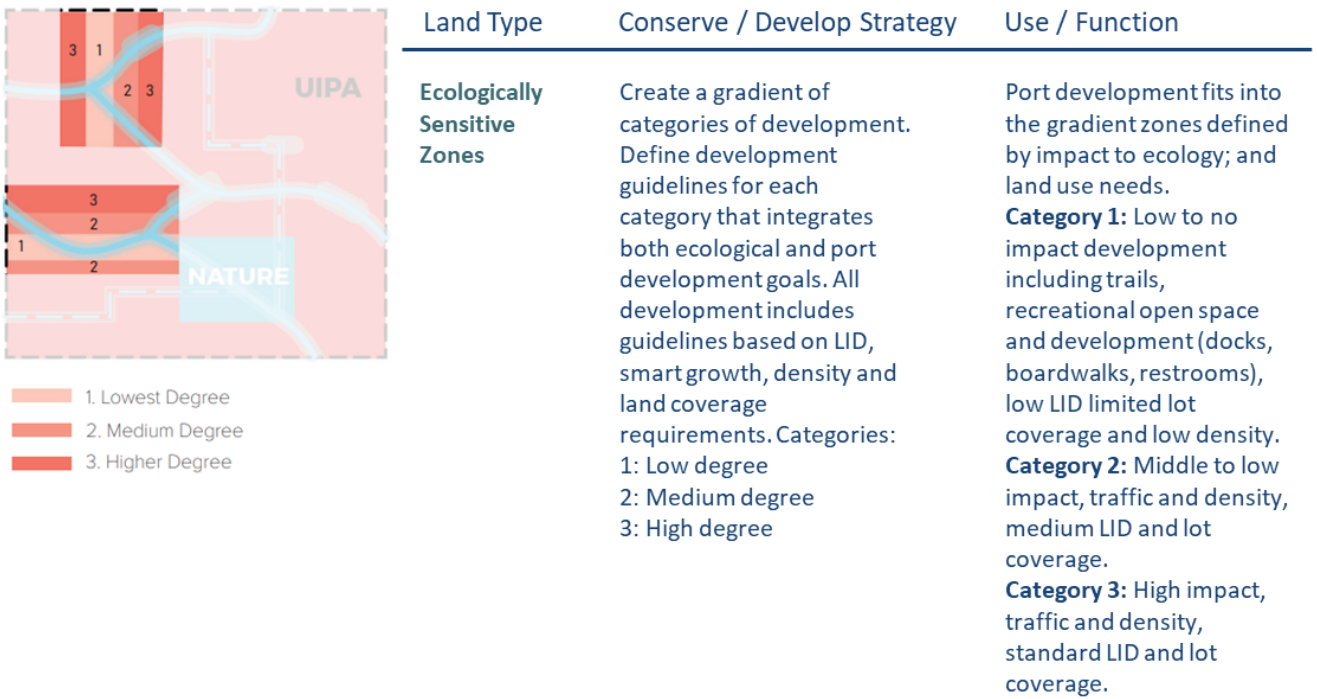
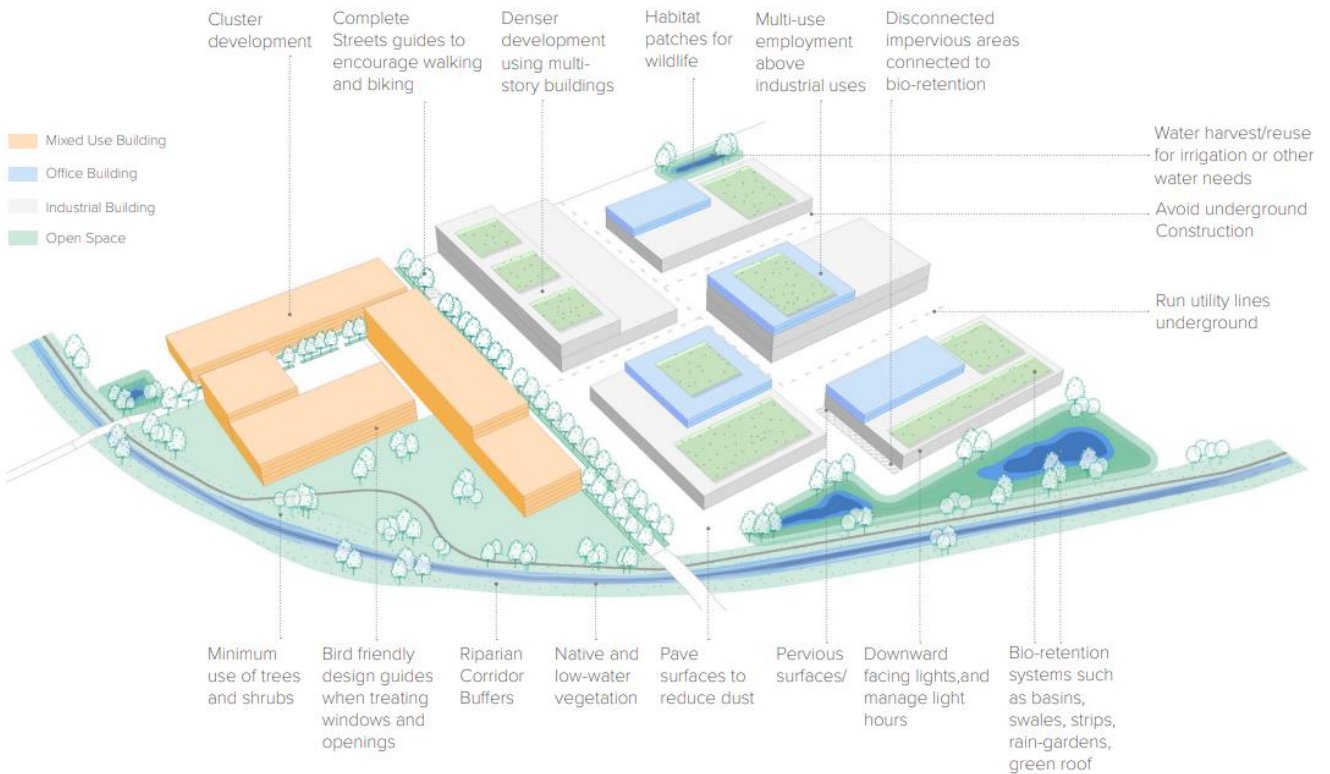


Figure 5 provides sustainable site development guidelines for an undeveloped parcel within the UIPA jurisdictional area that borders ecologically sensitive natural land.

**FIGURE 5: SUSTAINABLE SITE DEVELOPMENT GUIDELINES**







# What Strategies Can Guide Sustainable Development in the UIPA Area?

UIPA's duty to encourage sustainable development in project areas is an important aspect of fulfilling its mission.

The following sustainability strategies are designed to help UIPA and its partners and stakeholders address concerns related to the potential future impacts of development on air quality, water resources, natural resources, the transportation system, and land use within the jurisdictional area.



## Air quality concerns should be addressed through several strategies, including:

- Leveraging available funds and incentive programs at the federal and state levels
- Establishing means and platforms for ongoing conversations with stakeholders regarding the adoption of zero-emission systems
- Exploring policy measures to encourage zero-emission development and
- Futureproofing zero-emission vehicle charging and fueling infrastructure



## Water resource concerns should be addressed through strategies including:

- Developing a site-level Stormwater Pollution Prevention Plan Program using the Northwest Quadrant Stormwater Master Plan to understand and communicate drainage system conditions and
- Encouraging development types that are compatible with sustainable water conservation and runoff mitigation practices and enhancement of existing natural areas and resources



## Land use concerns should be addressed through strategies including:

- Reviewing and amending zoning ordinances, overlays, and development agreements
- Developing a coordinated, regional land use and transportation planning process
- Developing a UIPA Master Plan to demonstrate sustainable, collaborative development
- Consolidating development near existing infrastructure; and
- Developing incentives and a strong business case for private development onboarding with UIPA sustainability guidelines



## Natural resource concerns should be addressed through strategies including:

- Continuing to build UIPA's role in and grow its program for natural resource management
- Preserving and improving existing conservation and open space areas in and around the jurisdictional area
- Limiting construction during the nesting season on parcels near natural areas
- Identifying and maintaining parcels along the northwestern portion of the jurisdictional area to serve as buffers to wildlife habitat and natural resources and
- Promoting outreach to engage and inform the community about the positive impacts of UIPA's approach



## Transportation concerns should be addressed through strategies including:

- Developing a Transportation Management Plan for the UIPA jurisdictional area
- Developing staff and agency capacity to become a sustainable development and transportation resource center and
- Developing partnerships and strategies with West Coast ports

Some of these strategies can be implemented and yield results in the short or medium term, while others will require implementation to occur over a relatively longer term. The framework in Figure 6 is used to recommend varying timelines for strategy implementation.

Foundational strategies can progress in the short term, enabling UIPA and its stakeholders to achieve them with a relatively lower level of effort. Meanwhile, enterprise strategies require a relatively higher investment in time and effort, but they enable UIPA and stakeholders to continue implementing the foundational strategies while positioning them for acting on optimized strategies in the future. Finally, optimized strategies require the highest level of effort and coordination among UIPA and stakeholders. The recommended prioritized strategies are summarized in Figure 7. More detail on these strategies can be found in the Report Findings and Recommendations.

**FIGURE 6: TIMELINE FOR STRATEGY IMPLEMENTATION**



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**FIGURE 7: PRIORITIZED STRATEGY RECOMMENDATIONS**

Type	Timeline	Prioritized Strategies
Air Quality & Energy Strategies	Foundational	1. Renewable Charging/Fueling Infrastructure Development
		2. Engagement with Focus on Infrastructure Challenges
		3. UIPA Strategic Sustainability Plan
	Enterprise	4. EV Adoption Facilitation
		5. Future Proofing
		6. All-Electric Building Construction and Adoption of Robust Energy-Efficiency Goals
Natural & Water Resources Strategies	Foundational	1. Stormwater Management Plan and Stormwater Pollution Prevention Plan Program Based on Northwest Quadrant Stormwater Master Plan Considerations
		2. Phased Development Facilitation
	Enterprise	3. Building UIPA's Resource Management Role
		4. Enhancing Existing Conservation
	Foundational	5. Incentivizing the Location or Expansion of Low Water Using Businesses and Encouraging Water Conservation Practices and Usage Reporting
	Transportation Strategies	Foundational
2. Partnership with West Coast Ports		
Enterprise		3. Developing Staff and Agency Capacity
		4. Creating a Sustainability Business Association
Land Use Strategies	Foundational	1. UIPA Master Plan
		2. Zoning Review
	Enterprise	3. Development Consolidation
		4. Onboarding Incentives
	Optimized	5. Coordinated Planning Processes