

INTEGRATING Context Sensitive Solutions In Transportation Planning



I-15 Landscape and Aesthetics Corridor Plan



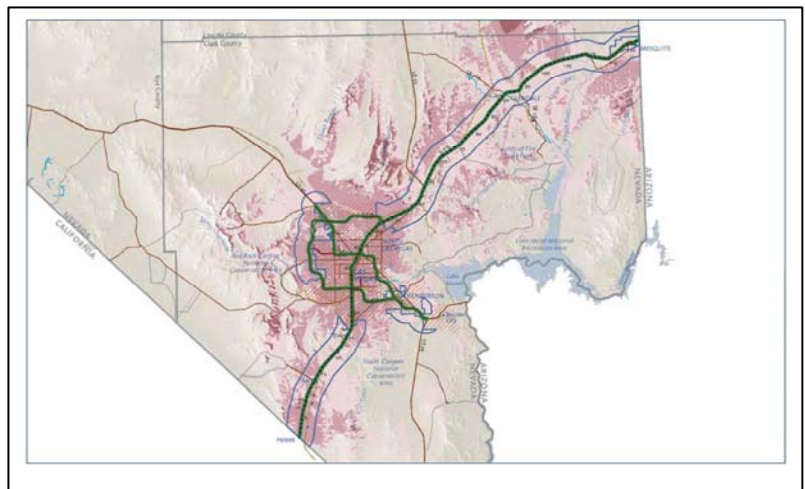
Nevada Department of Transportation

The “I-15 Landscape and Aesthetics Corridor Plan” is a part of the Nevada Department of Transportation’s (NDOT) statewide landscape and aesthetics program. In 2002, NDOT adopted a master plan, “Pattern and Palette of Place,” which set forth overall landscape and aesthetics policies, as well as the process for implementing those policies and guidelines in corridor planning and project development. The plan offers complete detailed guidelines for some 370.15 km (230 mi) of roadway from California to the Arizona border, including beltways and crosstown links within the Las Vegas Valley.

The initial impetus for the landscape and aesthetics program came from then-State Attorney General and member of the State Transportation Board Frankie Sue Del Papa. Extending an interest in a statewide tree-planting program, Del Papa recognized the importance of attractive gateways and roadways for economic development. Local residents had lodged complaints about the appearance of some NDOT facilities, even newly constructed ones. In the Las Vegas area, some of the dirt infields surrounding interchanges and overpasses were also contributing to high levels of airborne-particulate pollution. Generally, NDOT resources had been committed to construction of new facilities while landscaping and aesthetics were low priorities. Yet when the agency initiated the master-plan process and opened a dialogue with the public, it discovered how important issues of highway aesthetics were to communities across the State.

To address the issue in a meaningful way, NDOT recognized the need for a plan that not only provided high quality design proposals, but also a plan that was practical and could be implemented. An important component of feasibility is financial feasibility. The “I-15 Corridor Plan” recognizes financial constraints by including not only estimated construction costs, but also estimates of maintenance costs. Attention to life-cycle costs is critical because NDOT faces a constrained budget coupled with rapid growth and the associated demand for new or expanded facilities. This means that NDOT cannot afford to install or maintain landscape designs that require extensive labor, materials, or irrigation. Balancing the fiscal, environmental, and community elements, the plan sets forth a range of options for each segment of the corridor that are in keeping with the human and natural environment, along with estimates of life-cycle costs. This holistic, long-term approach stems from a focus on understanding the context of the corridor and a commitment to blending with and enhancing the context. The “I-15 Corridor Plan” offers an example of how a CSS approach to corridor planning can provide substantial benefits for all stakeholders, including those within the DOT:

- How can a transportation plan be in harmony with a variety of visions in a region?
- How can a corridor plan inform not only project development, but also promote the long-term sustainability of those projects?
- What are some effective ways to convey the vision and principles of a plan?



Map source: “I-15 Landscape and Aesthetics Corridor Plan,”
courtesy of NDOT.





Planning Context

The I-15 corridor was one of Nevada's first corridors to be planned under the program. This corridor crosses southern Nevada, one of the fastest growing regions in the United States. When the "I-15 Corridor Plan" was published, the Las Vegas Valley was gaining an average of 6,000 new residents every month with a projected population of nearly 3 million by 2020. Despite the existence of an urban growth boundary around Las Vegas and its suburban communities, land will continue to be available for development, as some 109.27 km² (27,000 a) of publicly owned land inside the boundary is scheduled for auction to the private sector over the next two decades. Other sizable developed areas include the casino-dominated settlements of Primm and Jean near the Nevada-California border, and Mesquite near the Nevada-Arizona border. The rest of the corridor planning area is lightly settled, and much of the adjacent lands are owned by Federal agencies (Bureau of Land Management, Bureau of Indian Affairs, and the Department of Defense).

The region is a major tourist destination. Las Vegas draws some 35 million visitors per year (2003). Aside from Las Vegas, the I-15 corridor serves other tourist attractions, including the Grand Canyon, Lake Mead, Hoover Dam, and the Desert National Wildlife Refuge. Although many think the entire state of Nevada is a desert, in fact, it is highly diverse in climate, culture, demographics, and population densities. There are also important and valued natural resources within the corridor planning area, including desert bighorn sheep populations and unique Joshua Tree plant communities. Many of the natural areas are protected, with substantial lands designated as Areas of Critical Environmental Concern (ACECs) by the Bureau of Land Management, some of which are directly adjacent to the I-15 right of way. Careful protection of riparian areas is also needed, which are especially vulnerable and valuable in the arid climate.

The diversity of Nevada's natural and human environmental contexts made it clear from the start that a single design palette would fail to be in context with all State roadways. NDOT needed to produce more than one plan to appropriately address the needs of these diverse regions and communities. The approach, therefore, is a series of corridor plans that adhere to the basic premises, policies, and guidelines established in the master plan. The master plan provides the overarching guidance for NDOT's landscape and aesthetics program, and includes goals beyond the merely decorative. Highway landscape and aesthetics projects seek to improve safety for users, enhance environmental health, preserve communities' identities, and support the State's tourism economy by providing a pleasant driving experience. Plan updates are anticipated every five years for the master plan and every five to ten years for the corridor plans.

"Today it is the policy of the state of Nevada to consider landscape and aesthetics along with all other design factors in all transportation projects; . . . communities, the public, other permitting agencies, and the private sector are encouraged to be involved in the planning, design, construction, and maintenance of transportation projects. Such a partnership will help ensure Nevada's highway system expresses the unique heritage, culture, and environment of the State and its communities."

"I-15 Landscape and Aesthetics Corridor Plan"

NDOT partnered with the Landscape Architecture and Planning Program at the University of Nevada, Las Vegas (UNLV), during the master planning process. The UNLV group not only brought their professional expertise to the table, they also convened the technical review committee, organized research teams, and wrote the master-plan document. For the "I-15 Corridor Plan," NDOT continued to work with UNLV and statewide transportation advisory and review boards, but also retained the services of consultants. NDOT specified that the composition of the consultant team was to be truly multidisciplinary, with landscape architects, civil engineers, planners, designers, graphics professionals, a professional facilitator, and a web designer.





“The public said they would rather have 25 miles that fit the context and looked nice than 26 miles of ugly road.”

Lucy Joyce Mendive,
NDOT Landscape Architect Supervisor

From the beginning, consultants and stakeholders were told that the focus of the planning effort was to celebrate the uniqueness of Nevada’s communities and to ensure that any recommendations were consistent with the communities’ desires and needs. To fulfill this goal, the “I-15 Corridor Plan” relied heavily on stakeholder input, representative technical review committees, as well as detailed studies by professionals. An extensive public outreach effort brought together diverse histories, cultural values, and the characteristics of unique landscapes which the planning team used as the foundation for a plan that reflects the context of each

segment of I-15, while providing some overall themes for the entire corridor. The adopted plan has been endorsed by 25 entities, including the municipalities along the corridor, resource agencies and advocacy groups, business and development interest groups, departments of public works and water management, and regional planning agencies. The plan has also been recognized by the American Society of Landscape Architects.

CSS Principles Applied

- **In Harmony with the Regional and Communities’ Visions/Sensitive to the Human and Natural Environment:** The road segments included in the “I-15 Corridor Plan” traverse diverse landscapes that range from the bright lights and intense development of the Las Vegas Strip to the subtle topography and color palette of the Mojave desert. The plan recommends treatments that recognize these differences, yet also seek some unity across the entire corridor. For example, base colors for hardscape elements are different for each major segment, and yet coordinate with one another, while the range of accent colors remains the same across the entire corridor. Any accent color can be selected for any segment. The plan states that community gateways should be planned and designed in collaboration with State and local agencies and local stakeholder groups so that the community’s uniqueness and identity is expressed, while corridor-wide softscape palettes would bring consistency to the entire corridor. The plan balances specifications for designs with flexibility.

Sensitivity to the human and natural environment is expressed in a number of ways in the plan. One example is the recommendations for landscaping. The plan recommends the removal of existing turf at a number of interchanges, to be replaced with native or desert-adapted species, along with ground treatment (e.g., soil stabilizers and rip-rap) for erosion/dust control and improved drainage. Only drip irrigation systems are recommended when needed for individual plants, and some locations are planned to include water recovery systems. Thus, the planned landscaping will be in harmony with the desert color palette, climate, and water resource budget. Sensitivity to the human environment is expressed in the recommendations against overlighting. The plan states that lighting should be adequate to meet safety standards. It also recommends that current standards be studied and adjusted if they go beyond safety needs. The recommendations that sound walls and other structures be treated with color and graphics also reflects sensitivity to community desires and provides opportunities to convey cultural themes.

Design recommendations reflect the specific community context of each segment of the corridor. In the open desert areas, design recommendations include using the subtle shades of the surrounding geology and plant life. Yet dramatic design is encouraged where appropriate, especially in the Las Vegas segment. The plan states that at the gateway to the Las Vegas strip, structures, plantings, and lighting should meet the design objectives of emphasizing this unique destination with “intense, edgy and over-the-top design” for structures and transportation art, keeping in mind that many visitors will arrive at this point after dark.



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➤ **Planning Products Feed Directly into Project Planning:** Aside from including thorough details on specific design elements, the plan includes considerable information on the principles and ideas that lie behind the specifics. These principles can be used to guide the myriad unique and specific decisions that will have to be made for each project. The plan provides the basis for project design and sets out the basic ideas that will shape any project's aesthetic elements. This brings a time savings in the project development process as the basic aesthetic design work was done during the corridor planning phase. The investment NDOT made in understanding the corridor contexts and developing high-quality design recommendations that are buildable is paying dividends during the project development process.

“We see a real time savings, as 10 to 20 percent of the design is taken care of up front. And the more projects we do, the more money we save.”

**Rand Pollard,
NDOT Assistant Chief Road Design
Engineer**

➤ **Range of User-Friendly Tools for Communicating Options:** The plan describes four types of softscaping, presenting the information in a systematic yet very user-friendly way. Schematic descriptions of each type are shown in representative color photos and in diagrams of prototypical road segments and interchanges. Each type is given a color code that is used consistently through the plan document. The set of design options for structures and hardscapes is similarly presented. These schematic designs are then linked to specific locations and corridor segments. Specific road segments are mapped, showing towns, nearby sites of interest, and the general design approach for each part of the segment. A longitudinal diagram of the segment is also included with color coding to indicate the specific type of softscaping and hardscaping recommended for each road mile. The diagrams include design considerations and goals that were important in shaping the recommendations. Locations where welcome centers, scenic overlooks, and rest areas are appropriate are identified. The design philosophy and guidelines for each of these locations are outlined. Throughout, plan recommendations use the context as a point of departure for the design of structures, site layouts, plantings, transportation art, and signage. The diagrams and maps convey tremendous amounts of information clearly and concisely, and the photo examples help users visualize the design options.

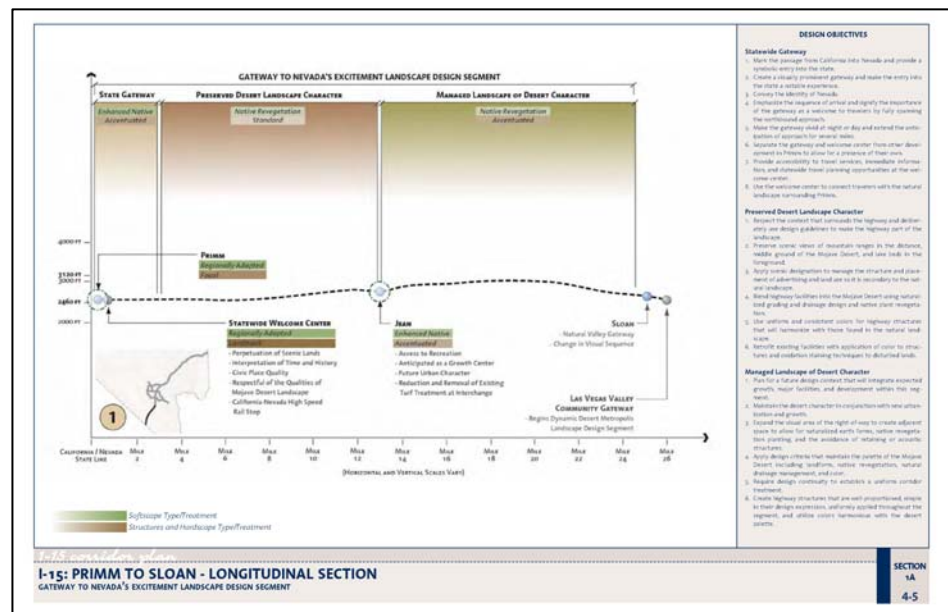


Diagram source: “I-15 Landscape and Aesthetics Corridor Plan, courtesy of NDOT.”

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“The DOT’s basic funding premise should be maintenance first, which is key to achieving the lowest life-cycle costs of our infrastructure. We must have the foresight and courage to truly consider maintenance costs upfront.”

Jim Souba,
NDOT Chief Maintenance Engineer

Since project costs are a critical factor in selecting aesthetic treatments, the plan also includes cost estimates for construction and maintenance. Costs are presented clearly, and the plan includes an explanation of how they are to be interpreted in keeping with the NDOT statewide program that allocates up to three percent of a project budget to landscape and aesthetics. If a community wishes to have a more elaborate design, NDOT will enter into a partnership agreement with the local jurisdiction. In these agreements, the local jurisdiction provides funding towards installation and maintenance, and NDOT carries out the maintenance. Including maintenance costs is an important part of planning for the entire life cycle of a project. This level of transparency about costs builds trust and brings local officials and the general public into the decision-making process in a very practical way.

Lessons Learned

The landscape and aesthetics program required attention to an aspect of highway design that had not had a high priority within NDOT. There continues to be concern among some NDOT divisions about the potential for increased project costs and greater demands on staff. While the issue of staff resources was addressed to some extent by the State legislature when it funded a landscape architect position within NDOT, some resistance remains. Still, the program is overcoming that resistance as it gains popularity with the public, draws positive media attention, and gathers political support among high-level NDOT officials and elected leaders.

While the “I-15 Corridor Plan” includes details on costs for the various types of aesthetic treatments it recommends, experience is showing that these cost estimates are not always accurate. Tracking costs for landscape and aesthetics is complicated because they are accounted for in many different ways on projects. The NDOT Maintenance Division is currently conducting a study of maintenance costs within the State and across the country with the goal of improving the NDOT maintenance management system. Cost data collected by the study will be fed back into project planning and design as well as corridor plans and plan updates. Improving the accounting for landscape and aesthetics costs will help ensure the long-term sustainability of projects. It will also strengthen the overall landscape and aesthetics program by providing better information to local agencies so they can make sound and sustainable decisions when entering into partnership agreements.

“If we plant a tree that dies because we can’t afford the maintenance, that leaves a worse impression than never planting the tree. To succeed, we must both understand and plan for these long-term costs.”

Jim Souba,
NDOT Chief Maintenance Engineer

Challenges Ahead

No doubt the greatest challenge for implementing the plan will be securing long-term funding for maintenance. Although the State has specified a formula for funding design and construction, there is no dedicated source for maintenance. Without securing long-term commitments from local agencies/municipalities, enhanced landscape and aesthetics treatments may have the effect of increasing the workload of the NDOT Maintenance Division without increasing funding for maintenance. Therefore, the landscape architects and designers for each project must take care not to add additional maintenance work and costs without a secured partnership. This will require attention to partnership and funding issues during the public outreach process for each project. Consistent application of funding policies across the corridor and the State will be needed to build trust in the plan and the process among all stakeholders.



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Principles

Fact Sheets

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Q&A

One of the benefits of having a degree of consistency throughout a corridor is efficiency gains for maintenance. When the colors and treatments are consistent throughout a corridor, maintenance crews need to carry fewer paint colors and types of equipment and tools. Yet in some cases, there is pressure to deviate from the plan recommendations. This pressure typically comes from large commercial developments. Many of their installations include water-hungry palm trees and turf that are inappropriate for the context and not in keeping with the corridor plan design principles. To attain the vision of a coherent, cohesive design across the entire corridor, consistent application of design standards will need to be enforced. This will require a commitment to the overall landscape and aesthetics program and to the corridor plan vision by NDOT and the entities that regulate development and land use.

Although the "I-15 Corridor Plan" faces challenges to implementation, the plan is proving to be a useful document. By taking a CSS approach to understanding and working with the full context of the corridor, the plan responds to the needs of the public, resource agencies, NDOT staff, and design and construction contractors. The benefits of including attractive aesthetic design in roadway design will continue to be realized as more of the I-15 corridor is built in compliance with the plan recommendations that include careful attention to long-term physical and financial sustainability.

For More Information:

- [NDOT Landscape and Aesthetics Program](http://www.ndothighways.org): www.ndothighways.org
- [FHWA CSS website](http://www.fhwa.dot.gov/csd/index.cfm): www.fhwa.dot.gov/csd/index.cfm
- [AASHTO CSS website](http://environment.transportation.org/environmental_issues/context_sens_sol):
http://environment.transportation.org/environmental_issues/context_sens_sol
- [Online Resource Center for CSS](http://www.contextsensitivesolutions.org): www.contextsensitivesolutions.org

