

## CV Link: California's new paradigm in shared use pathways

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### **ABSTRACT**

The Coachella Valley (CV) Link is a proposed US \$100+ million, 80 km trail along California's Whitewater River for Low Speed Electric Vehicles (LSEVs), bicyclists, and pedestrians. Construction begins in 2017, and when complete it will be the largest such facility in the United States. The project breaks new ground in scope, speed of implementation, and design characteristics. A number of innovative planning tools are described, including fieldwork technologies, pairwise criteria weighting within the route prioritisation multi-criteria analysis; public consultation; marketing, and cost estimation tools.

*Note: portions of this paper are modified extracts from the Conceptual Master Plan, available on [www.coachellavalleylink.com](http://www.coachellavalleylink.com). Other than document titles and proper nouns, spelling and terminology has been changed to UK/Australian English as appropriate to the audience. The author of this paper was the lead author of the Conceptual Master Plan while working for Alta Planning + Design, under contract to the Coachella Valley Association of Governments (CVAG).*

# INTRODUCTION

## CV Link summary

Coachella Valley Link (CV Link) is an 80 km alternative transportation corridor for pedestrians, people cycling, and low-speed (up to 40 km/h) electric vehicles (LSEVs) along the Whitewater River and Tahquitz Creek that will initially stretch from Palm Springs to Coachella. The project is being spearheaded by the Coachella Valley Association of Governments (CVAG), the regional government for the communities and Indian tribes in the desert valley portion of Western Riverside County. The route alignment is shown in Figure 1, and a rendering is shown in Figure 2.

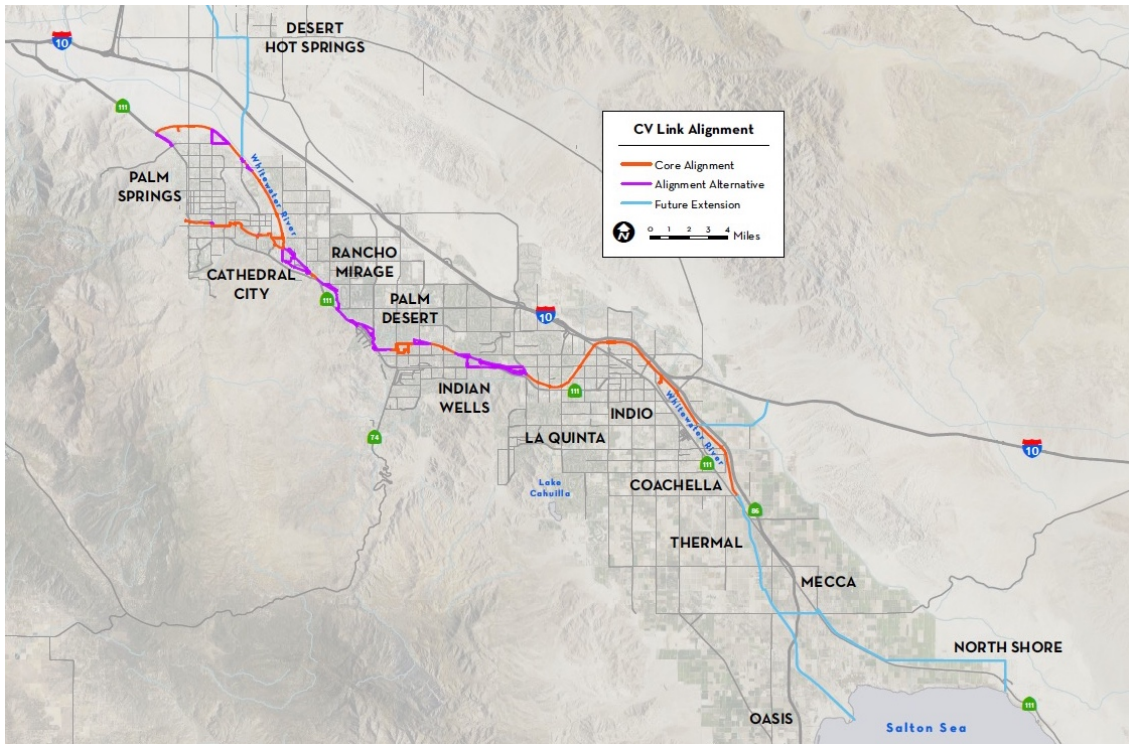


Figure 1: Overview map of CV Link (Alta Planning + Design 2016)



Figure 2: Rendering of a focal point, with shade structures, seating walls, and coloured pavement markings

## Structure of this paper

This paper begins by presenting the **context** of the project and the evolution of the idea from the Whitewater River Trail, to Parkway 1e11, to CV Link. The **planning** section discusses planning tools such as video data capture, route alternatives prioritisation, a flexible planning level cost estimation workbook, and public engagement methods. The **design** section highlights some of the inspirations and the themes that have driven the design process, followed by the setting of new design guidelines to cater for the mix of users.

## CONTEXT: A NEW PARADIGM EVOLVES

### Land use and transportation context

CV Link will address some of the transportation deficiencies and associated social problems caused by the Coachella Valley's current car-oriented transportation infrastructure (Alta Planning + Design 2016) and economically segregated land uses. Currently, pedestrian and bicycle travel is inhibited by the lack of available safe corridors, an indirect road system characterized by gated communities (Figure 3), and high arterial speed limits (typically 70 to 90 km/h). CV Link will provide direct access to six schools and numerous public destinations such as shopping centres, libraries and parks.

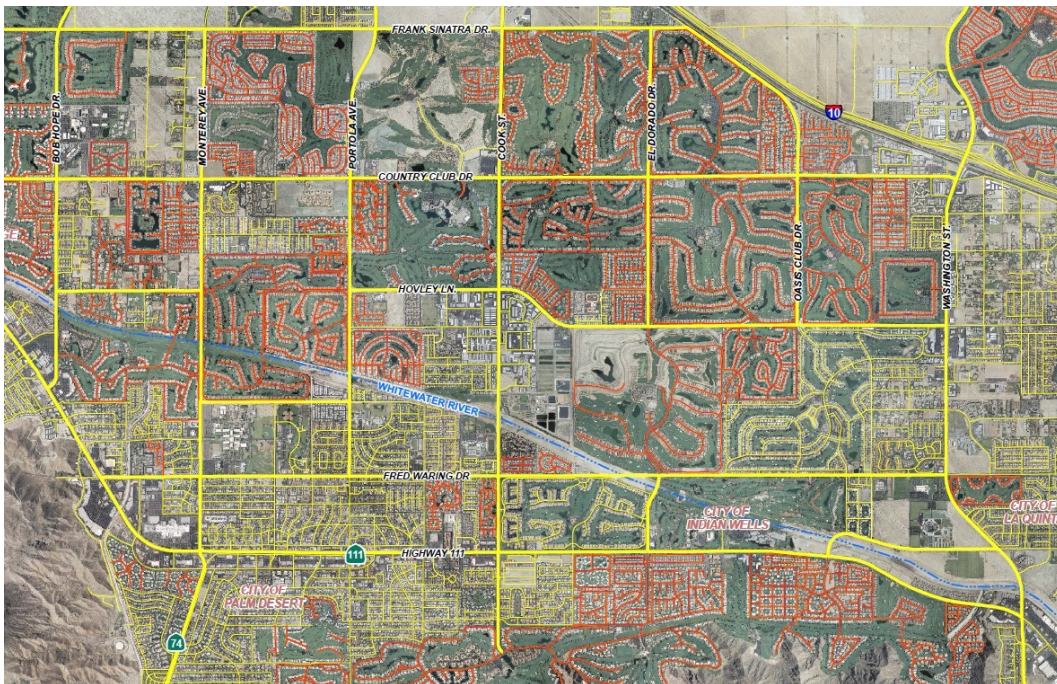


Figure 3: Road connectivity in the central Coachella Valley. Yellow routes are public access and typically multi-lane arterials (thick lines), whereas red lines indicate private gated streets. Image: MSA Consulting, Inc.

With over 124 golf courses in the Coachella Valley (77 in or adjacent to the Whitewater River Stormwater Channel), there are many golf carts but few places to use them outside of golf course communities. CV Link would be available for any low speed electric device including electric skateboards, mobility scooters, e-bikes, golf carts, and road-legal neighbourhood electric vehicles (NEVs). NEVs are a sub-type of LSEVs with up to six seats and meeting federal standards for use in mixed traffic on roadways with speed limits up to 35 mph (56 km/h) or on any roadway with a dedicated special vehicle lane (California Department of Motor Vehicles 2014). Dedicated NEV lanes may also be shared with bicyclists.



Figure 4: A 4 seat NEV (L) and 2 seat golf cart (R)



Figure 5: A road legal 2 seat NEV at a store in Palm Desert

Although LSEV networks exist in places such as Lincoln, CA; Peach Tree City, GA; and The Villages, FL, CV Link will be the first regional LSEV facility parallel to a major highway and connecting the core of several communities. In offering a direct route mostly free of delays at traffic signals, it will be time-competitive to driving for many people and is therefore likely to change transportation patterns. Although not quantified in the funding economic analysis, CV Link will also provide a useful alternative escape or access route in the event of an emergency, such as an earthquake. During a major natural disaster, principal highways may be congested or impassable, and even if portions are damaged, CV Link could provide additional capacity and network redundancy. On-street portions of CV Link will help meet the requirements of the Complete Streets Act, which requires cities to ensure that streets accommodate all user types (Caltrans 2014).

### ***Environmental context***

#### ***Sand storms***

Southeast of Palm Desert, the Whitewater River is known as the Coachella Valley Stormwater Channel. The river channel conditions vary from riparian habitat to flood scoured and concrete lined to golf courses that are designed to convey water during storms but are available for recreation at other times. Even where concrete lined, most of the channel slopes and levee tops are covered in sand which contributes to periodic sand storms. CV Link paving will help mitigate this issue, although as with road closures, portions of CV Link may occasionally be closed during sand storms.

#### ***Heat***

The Coachella Valley is a pleasant place to walk or bicycle during winter months – it is flat, it rarely rains, and temperatures are ideal for exercise. In contrast, the peak heat (approximately 45°C) during summer months can discourage outdoor activity or even present a health risk. Many long-term residents have adapted their outdoor recreation and exercise to early morning and late night hours to avoid the peak heat, as may be observed at other trails, golf courses, tennis courts, and various sports fields throughout the valley.

#### ***Wind***

High winds are a potential impediment to use, especially in north Palm Springs. The wind turbines are a testament to the strong and consistent winds found in this part of the valley. Wind speed is higher at night, with daytime winds lighter especially around the cooler sunrise and late evening periods (Fisk 2007). On many days where the peak wind speed would seem incompatible with walking and bicycling along this segment, there are periods of the day when the wind speed is not an issue. Some particularly hardy users will not be deterred from using CV Link, but the advent of electric assist bicycles and improving battery technologies will help minimize the impact of wind on

usage for other users. Anemometers along the route are proposed to upload current wind speed to the CV Link web application so that users can plan their visits and attire accordingly.

### Trail plans

CVAG's seminal 2002 Non-Motorised Transportation Plan (NMTP) conceived of a network of cycle facilities, shared use paths and trails building off of existing discontinuous paths. The Coachella Valley Community Trails Alliance began advocating for the trail along the Whitewater River in earnest in 2006. The 2009 Trails Corridor Study (Dangermond Group, WRC Consulting Services et al. 2009) provided the first rigorous scoping study for the Whitewater River Trail between the headwaters in the Whitewater Canyon Conservation Area and the Salton Sea. The 2010 update of the NMTP included the Whitewater River Trail and it was adopted into the statutory Palm Springs City Plan.

From that grassroots start, CVAG became interested and invested in the project to address transportation, air quality, public health, and equity issues. CVAG administers 50 percent of the regional Measure A sales tax revenue for the Coachella Valley as a part of its decades-long, multi-billion-dollar transportation program. The Parkway 1e11 (so named to evoke electric vehicles and the alternative to the cross-valley Highway 111) was conceived as a bigger and bolder heir to the vision of the more modest, but still ambitious, Whitewater River recreational trail. CVAG commissioned the following planning studies (available on [www.coachellavalleylink.com](http://www.coachellavalleylink.com)):

- Whitewater River/Parkway 1e11 Preliminary Study Report (2012)
- Air Quality Benefits Report (2012)
- Economic Impact of the Parkway 1e11 (2012)

The most recent planning phase was a three-year, US\$1.5M effort to refine the proposals of the Preliminary Study Report. The output of the effort is summarised in the 664 page, four volume Conceptual Master Plan. These events are summarised in Figure 6.

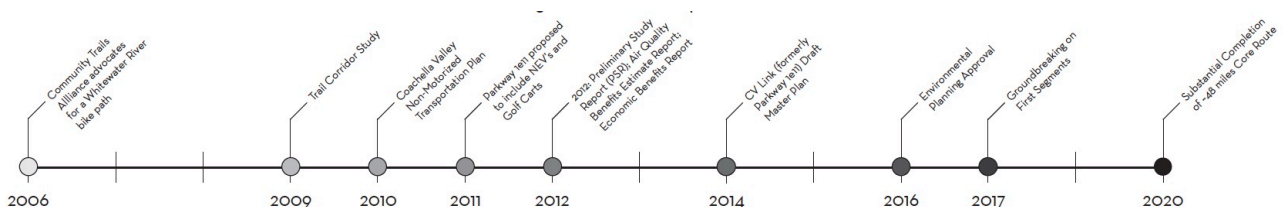


Figure 6: Project timeline

### Major challenges

Aside from funding, there are two major challenges for CV Link: use of the flood channel and localised opposition.

Riverside County Flood Control Chief Engineer Dusty Williams has said that we cannot control floods, but we can control the risk by two methods: "Keep the water away from the people; and keep the people away from the water... enough said!" (Riverside County Flood Control and Water Conservation District) While this viewpoint undoubtedly makes sense from a hazard mitigation and traditional channel maintenance perspective, it limits the ability to develop any kind of public facility along a flood channel. In recognition of the positive benefits and unrealised concerns associated with precedents like the nearby Santa Ana River Trail, the management of both RCFCWD and the Coachella Valley Water District (CVWD) signed on to the project early on. Principal benefits for the flood agencies included the potential for a concrete pathway on one bank to provide additional

capacity and maintenance benefits while leaving the other bank of the channel available to heavy equipment.

NIMBYism ("Not in My Back Yard) is turning out to be the bigger issue. Up until early 2015, all the cities of the valley supported the project in principle. However, some residents of Palm Springs, Rancho Mirage and Indian Wells who live near or adjacent to the route raised concerns through their city elected representatives and the media in an effort to modify, slow or stop the project. Opposition centred around perceived noise, visual amenity and privacy impacts, and concerns about facilitating crime. The project team's efforts to address these issues is covered later in this paper.

Finally, operations and maintenance has been an issue for city leaders concerned about future liabilities. The Master Plan covers management structures, marketing and programmes, enforcement, safety and security, risk management, maintenance, cost estimates, and funding sources. Although costs will not be known until the pathway has been in operation for some time, budgets are included for sand removal, restrooms maintenance, removal of graffiti and rubbish, pavement renewals, bridge maintenance, and numerous other categories. Costs have been developed based on experience, interviews with other major pathway managers, literature review, surveys of city staff, benchmarking, and a series of public meetings. The final plan presents a range of O&M annual budgets from \$535,400 to \$1,561,300, largely dependent on whether or not rangers are employed and provided with NEVs for patrol and maintenance duties. This works out to a range of roughly NZ\$10,000 to \$28,000 per kilometre per year. It is noteworthy that most U.S. off-road path networks do not have a dedicated O&M funding source or budget unless they are part of park systems. The result of not funding maintenance would be a gradual reduction in level of service and user experience, which would have an impact on the ability to attract users.

### ***Naming and describing the project***

A concerted effort to develop a brand included consideration of over one hundred variations on names and focus group testing the top alternatives. The winning simple moniker "Link" placed the emphasis on connecting destinations and communities. The "CV" is intended to provide locational context, but the name can be shortened to just "Link" as it becomes better known.

Aside from the facility name, there has been an issue over how to describe CV Link. At the California Trails Conference 2013, CVAG's Executive Director began his keynote address by noting that he was going to talk about something that was not a trail at all. From the outset, the planning and design team debated what to call the facility. A trail, cycleway, path, pathway, parkway, greenway, roadway, or travelway? Each of the terms is laden with different meanings to different people.

A trail is an unsealed and rugged hiking or mountain biking facility. Cycleway, like walkway, places too much emphasis on one of the modes served. Pathways are often associated with 1.5 – 2.5 m wide facilities, when the design width is typically 4.2 m plus shoulders and a separate pedestrian path where justified by anticipated demand and technically feasible. For eastern Americans, parkways are limited access motor highways; for others, the term evokes recreation. A greenway is a popular term, suggesting an environmental friendly thoroughfare or a route through leafy parkland, but it was felt that the Coachella Valley is too dry for the term to be appropriate. Roadway is a term that is fairly accurate, although notwithstanding the relative silence of human and electric motive power, the negative traffic connotations (likely to be primarily noise) did not sit well with some adjacent residents. Travelway is perhaps the best term and the one that the Master Plan Executive Summary uses, although the intended placemaking and community space

functions of CV Link are somewhat excluded by the emphasis on mobility. Ultimately, the media generally has referred to CV Link as a “recreational path” (despite the transportation objectives).

### **Funding: business case and leveraging**

In the US, funds are often more readily available if there is a motor vehicle component. Therefore, funding applications described it as a bicycle, pedestrian and low speed electric vehicle “roadway” in order to expand the range of funding sources. No legal reason was found that funding had to go to roadways designed to include OR exclude automobiles.

Perhaps one of the most important changes in the way the project was presented between the Whitewater River Trail and CV Link has been to reframe the timeline for delivery. When a large project is proposed to be implemented in small stages over a thirty-year timeframe, people cannot envision being able to use it themselves and the motivation is more about leaving a legacy for future generations. In contrast, CV Link has consistently been presented as “COMING SOON”, with substantial completion within five years. The author has noted that this immediacy has propelled enthusiasm at public meetings, in letters to the editor, and personal communications.

The promise of rapid implementation has been based on the leveraging of key funding sources to quickly assemble two-thirds of the required budget. While the business case approach is standard procedure in New Zealand (NZ Transport Agency), up until recently California has not had a consistent method of evaluating the merits of active transportation projects. Whereas New Zealand transportation projects tend to focus on travel time and safety benefits outlined in the Economic Evaluation Manual (NZTA 2010), a wider economic benefits approach was taken using California Air Resources Board air quality data, the IMPLAN economic model ([www.implan.com](http://www.implan.com)), and Alta’s Seamless Travel Demand model (Jones, Ryan et al. 2010) . Benefits were calculated for health, tourism, safety, residential and business valuation, fuel savings, and construction. The analysis predicted that for every \$1 spent, the project would return \$14 to the Coachella Valley economy (Husing 2012). Based on these and other predicted benefits, CV Link was awarded US\$10.9M (NZ\$15M), the largest single award in the US\$367M (NZ\$510M) California Active Transportation Program<sup>1</sup>.

A further US\$17.4M (NZ\$24M) was allocated to the project from air quality mitigation funds arising from the construction of a “peaker” power plant in the valley. The power plant was needed to smooth out lulls in Coachella Valley’s wind power generation during peak consumption periods.

Along these two funding sources, contributions from the transportation, recreation and health sectors have brought the current total CV Link funding up to US\$77M (NZ\$107M). This is over two-thirds of the currently anticipated US\$100M (NZ\$139M) initial implementation budget.

## **PLANNING: NEW TOOLS FOR AN 80 KM CORRIDOR**

The project began with a document review and a field review (including over 2,000 geocoded photos and walking or cycling the entire length of the proposed core alignment, public meetings, the development of preliminary alignments), preparation of design guidelines and elements reports, and the mapping of known utilities and right-of-way. High definition video data was collected for the majority of the route using a GPS-enabled, bicycle helmet-mounted camera. Based on this collected data and stakeholder outreach, the Preliminary Study Report proposals were refined.

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<sup>1</sup> California’s Active Transportation Program awards federal and state funds for road, path and trail infrastructure and non-infrastructure such as safe routes to school (SRTS) programmes. More information, including a summary of the Cycle 1 in which CV Link competed for funds, is available at: [www.catc.ca.gov/programs/ATP.htm](http://www.catc.ca.gov/programs/ATP.htm)

### Video capture

For many projects, Google “Streetview” provides an invaluable way to assess existing conditions before or after a field visit. The CV Link route alignment is to follow many corridors where there is no street level imagery available. For long corridors where a simple site walk and camera is insufficient, there are at least two emerging technologies for capturing video – use of an aerial drone, or use of a video capture device. For this project a Garmin VIRB (similar to the popular GoPro) was selected because it has inbuilt GPS geotagging and can associate captured video with the familiar Google Maps interface (Figure 7). The device registers gradient in addition to location.

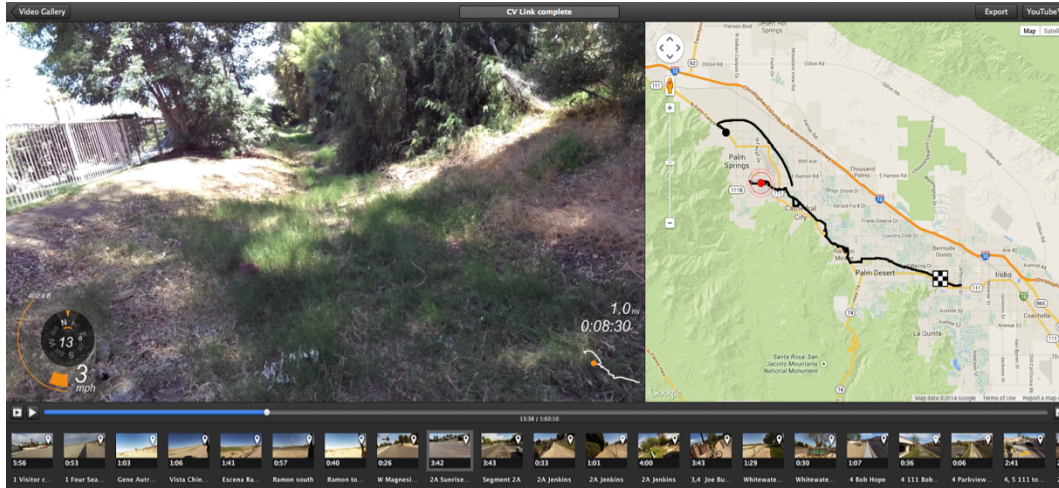


Figure 7: Screenshot of CV Link existing conditions video

### Alternatives multi-criteria analysis

The preferred project route will be determined through the auspices of National Environmental Policy Act and California Environmental Quality Act processes. However, the team needed to gauge which route alternatives constituted the design team’s recommendation for budgeting purposes. A pairwise comparison approach was used to arrive at a consensus criteria weighting given the variety of viewpoints within the project team. The approach uses a set of successive questions comparing the respondent’s views on the relative value of one criterion versus another, as shown in Figure 8.

Criteria Weighting Pairwise Comparison 1 = Criterion A is equal to criterion B, 2 = Criterion A is slightly more important than Criterion B, 3 = Criterion A is definitely more important than Criterion B, 4 = Criterion A is vastly more important than Criterion B	Level of Support	Ease of Env Clearance	Cost	Serves Trip Generators	Connects to existing	ROW Complexity	Quality of User Experience	Safety (traffic & personal)	Directness	Geomean	Calculated Weight
	<b>Level of Support</b>	1.00	3.00	3.00	2.00	4.00	2.00	2.00	2.00	3.00	2.29
<b>Ease of Env Clearance</b>	0.33	1.00	0.50	0.25	1.00	0.33	0.33	0.25	0.50	0.44	4%
<b>Cost</b>	0.33	2.00	1.00	2.00	4.00	2.00	0.50	2.00	2.00	1.40	13%
<b>Serves Trip Generators</b>	0.50	4.00	0.50	1.00	4.00	3.00	2.00	3.00	3.00	1.82	17%
<b>Connects to existing bike/ped/cart network</b>	0.25	1.00	0.25	0.25	1.00	0.25	0.25	0.25	0.25	0.34	3%
<b>ROW Complexity</b>	0.50	3.00	0.50	0.33	4.00	1.00	0.50	0.33	2.00	0.89	8%
<b>Quality of User Experience</b>	0.50	3.00	2.00	0.50	4.00	2.00	1.00	1.00	2.00	1.42	13%
<b>Safety (traffic &amp; personal)</b>	0.50	4.00	0.50	0.33	4.00	3.00	1.00	1.00	4.00	1.36	13%
<b>Directness</b>	0.33	2.00	0.50	0.33	4.00	0.50	0.50	0.25	1.00	0.67	6%
									SUM	10.63	1.00

Figure 8: The mechanics behind pairwise comparison survey used to weight criteria



However, the approach has limitations such as rank reversal – “the possibility that, simply by adding another option to the list of options being evaluated, the ranking of two other options, not related in any way to the new one, can be reversed” (Communities and Local Government 2009), however the method is simple and weighting is probably better than no weighting.

The criteria for CV Link were tailored to the project context, however this process has also been used in other corridor studies with different stakeholders and criteria such as trip demand, level of traffic stress (a measure of the quality of service of a facility reflecting user perceptions of the speed and volume of proximate motor vehicles), and gradients. Subsequent to the CV Link route assessment, a Transportation Research Board-supported research project resulted in the publication of a customisable workbook called the ActiveTrans Priority Tool (Lagerwey, Hintze et al. 2015). This tool is a useful complement to the planner’s toolbox, although weighting methods are better explained in UK guidance published by the Department for Communities and Local Government (Communities and Local Government 2009).

### ***Cost estimation for an uncertain route***

The Preliminary Study Report included a US\$65M (\$77M including the extension to Desert Hot Springs) cost estimate based on an assumed recommended route alignment and associated amenities such as charging stations and trailheads (LSA Associates, Alta Planning + Design et al. 2012). For the master planning phase, a method was needed to estimate costs for various combinations of alignments and design alternatives. To keep pace with a rapidly evolving project and numerous questions on the cost impact of individual decisions, an Excel workbook was built up sequentially, with unit rates feeding through 55 different cross section codes (including seven different grade separation types) and 18 different sets of route choices into a series of pivot tables.

### ***Building a design team***

From the outset, it was apparent that the project would require team members who understood the effects of heat, sand storms, and the hydrology of a usually dry riverbed that could at times carry 50,000 cubic meters of water per second. The equivalent of the NZ Transport Agency’s Procurement Manual in the U.S. is the General Services Administration’s Federal Acquisition Regulation and related processes developed to address current and past discrimination in awarding of contracts. According to the FHWA, the objective of the disadvantaged business enterprise (DBE) program is “to level the playing field by providing small businesses owned and controlled by socially and economically disadvantaged individuals a fair opportunity to compete for...contracts” (FHWA). Ultimately the project team included Hispanic and woman-owned businesses with strong local knowledge that would benefit the project. This outcome was in contrast to the alternative, where one of the world’s major consultancies with all or most of the disciplines available in-house could have performed the contract but turned in work that did not fit with local opportunities and constraints.

### ***Public engagement***

A local public relations firm supported the planning and design effort:

- Branding study: surveys at events and in focus groups on the name and branding for the project
- Website and social media: CoachellaValleyLink.com allows interactive communication in both English and Spanish between the public and the CV Link team. Twitter and Facebook feeds were established and have been kept updated
- Media relations: CV Link has been a main topic of news coverage since December 2011, and the team is in regular contact with the media

- Meetings and events: at least 78 meetings and events were attended or hosted across all demographics and locations in the valley
- Information including pamphlets has been developed in both English and Spanish
- Promotional video: a nearly two-minute video (<https://vimeo.com/97478887>) was developed and won a national Telly Award in the online video category. A 31 second cut was run on local TV as a public service announcement (PSA).

The video is inspiring, but there has been some backlash from opponents who did not understand that these PSAs were at no cost to taxpayers and considered them to be political. Another minor limitation to the video is that it portrays users primarily in a recreational context, feeding into a potential public perception that the project should not be eligible for transportation funds.

New Zealand has several excellent tools to help keep major projects on track, including the NZ Transport Agency's Benefits of investing in cycling in New Zealand communities pamphlet (NZ Transport Agency 2016) and the "social license to operate" practitioner training materials. In the long view, it has been suggested that in "places of competing demand, effective measures to enable cycling **should** be generating a backlash. If there is no backlash, then whatever it is you are doing is unlikely to make any significant difference" (Treasure 2015).

## DESIGN: NO TAN ROCKS!

### *Inspiration*

The CV Link design team researched local history, architecture, and landscapes in coming up with the initial design language. However, the client memorably stated "no tan rocks!" in alluding to the local themes that are worn thin from overuse and asking for a theme that would stand out, not blend in. A number of international inspirations helped the team think outside the box and in some cases influenced specific attributes. For example, CV Link was intended to include shade structures for the 45°C summer heat. However, Korea's Daejeon to Sejong pathway under a solar roof inspired the team to consider expanding the initial installation of some sixty shade structures into the hundreds or thousands, contingent on the economic viability of solar power generation revenues offsetting the capital costs.

### *Concept*

In keeping with the client's direction, the design concept evolved as shown in Table 1.

Table 1: Design concept attributes

<b>Existing conditions</b>	<b>Proposed conditions</b>
<b><u>Coachella Valley</u></b>	<b><u>CV Link</u></b>
• arid, dry	• cool, lush
• brown, earthy, muted	• vibrant, colorful
• flat, horizontal	• dynamic, vertical
• rough, rocky, textured	• sleek, modern
<b><u>Highway 111</u></b>	<b><u>CV Link</u></b>
• indirect, inefficient	• direct, efficient
• anonymous	• fun, social
<b><u>Whitewater Channel</u></b>	<b><u>CV Link</u></b>
• heavy, static	• light, dynamic
• angular	• fluid

Vibrancy (pulsing with energy and activity), motion (efficient, direct, fast) and levity (light, playful and unexpected) will be the three key reference points as the project moves through design.

## **New standards and guidelines**

Various standards and guidelines already exist for the design of roads, paths and flood channel facilities. However, the introduction of LSEVs and the need to meet the overall design vision meant that a dedicated guideline (Appendix 12 in Volume II of the Master Plan) was developed. This covers the following topics:

- **Width:** a combined 14 foot (4.3 m) bicycle and LSEV path was determined to be sufficient for most locations based on field testing. Where pedestrian volumes are expected to be high and/or right of way is available, a separate 6 foot (1.8 m) pedestrian path will be provided
- **Centrelines:** only used in sharp or blind curves or in constrained areas. Rather than the usual yellow marking specified in the road standards, CV Link blue and orange colours will be used (this is possible because the travelway is not open to highway capable vehicles and is not a state highway).
- **Mixing zones:** in constrained areas and/or where multiple user groups will need to interact, crushed glass will be “seeded” into the concrete surface in a pattern of decreasing spacing to trick the senses into decelerating.
- **Underpass clearance:** a 12 foot (3.65 m) vertical clearance was instituted, despite the fact that it will be infeasible in a number of locations. It was considered that it would be better to set a high minimum standard and require an explicit application for exemption than adopt a “lowest common denominator” value that would potentially end up being adopted everywhere simply to reduce costs.
- **Sign clutter, traffic control devices, bollards and other path terminal treatments** that introduce delay will be avoided unless proven necessary (post-construction), in line with the principles espoused in the UK’s Manual for Streets (DfT 2007). Bollards may be placed outside the travelled way for the purposes of lighting at path junction points.
- **Lighting:** in-pavement solar LED lights are envisioned to cast a soft glow over the path, demarcating the edge of pavement and, if needed, the centreline.
- **Shade structures** will be provided at frequent intervals, but must be designed to avoid conflicting with flood channel maintenance vehicles.

Sections four and five of the Master Plan present the design concept and an illustrated toolkit.

## **CONCLUSIONS**

Like New Zealand’s ambitious Urban Cycleways Programme, CV Link is about supporting a paradigm shift in the way that people get around their community in a place where walking and cycling are perceived to be unsafe and/or only for the physically fit.

The innovation of CV Link is the holistic approach that seeks to provide benefits to a wide range of users and sectors. As proposed, CV Link will break new ground by providing a backbone pathway system not just for able bodied pedestrians and people riding conventional bicycles, but also people using LSEVs, mobility scooters, electric skateboards, e-bikes, and other such e-devices that may be conceived of in the future.

CV Link is moving quickly in part because it has been conceived to provide benefits to many different sectors – flood control, health, recreation, tourism, and land development. It integrates walking, cycling, low speed electric vehicles, community solar, data communications (via over the air WiFi repeaters and in-ground fibre) and potentially other utilities all within the same corridor. By sealing one side of a flood channel, maintenance costs and windborne dust are reduced. The project provides recreation, transportation, and community space for underserved and

economically disadvantaged people as well as higher income people. It is this combination of multiple benefits that has helped the lead agency obtain NZ\$107M in committed funding and build significant momentum. Perhaps major New Zealand active transportation projects could be advanced more rapidly if the scope were broadened to bring more government ministries, potential funders, and other sectors together.

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