ENERGY PARKS AS INTERIM USES FOR TRANSIT STATIONS

Final Report

June 26, 2012

Southern California Association of Governments
Rancho Mirage, CA

IBI Group
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This is a project of the City of Rancho Mirage with funding provided by the Southern California Association of Governments' (SCAG) Compass Blueprint Program. Compass Blueprint assists Southern California cities and other organizations in evaluating planning options and stimulating development consistent with the region's goals. Compass Blueprint tools support visioning efforts, infill analyses, economic and policy analyses, and marketing and communication programs.

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EXECUTIVE SUMMARY

The objective of this project is to explore the feasibility of implementing an interim renewable energy facility on an undeveloped parcel of land owned by the Coachella Valley Association of Governments (CVAG) that is proposed as a future transit center.

This project was initiated by the City of Rancho Mirage under the Southern California Association of Governments (SCAG) Compass Blueprint program. The Compass Blueprint program provides cities with funding to conduct planning studies that advance ideas and proposals that are consistent with regional planning goals to accommodate future growth while reducing traffic congestion and greenhouse gas (GHG) emissions.

The identified project site is an 11.49 acre undeveloped parcel located within the City of Rancho Mirage. Specifically, the parcel is located directly south of the Interstate 10 freeway and Union Pacific rail corridors, and east of the Agua Caliente Resort and Casino and the new I-10 interchange at Bob Hope Drive.

This site is designated for the future development of a multi-modal transit center. However, development of this transit center is not anticipated to occur for the next fifteen to twenty years, and the City of Rancho Mirage approached SCAG with a proposal to analyze the feasibility of an interim use for this parcel until the multi-modal transit center can become a reality.

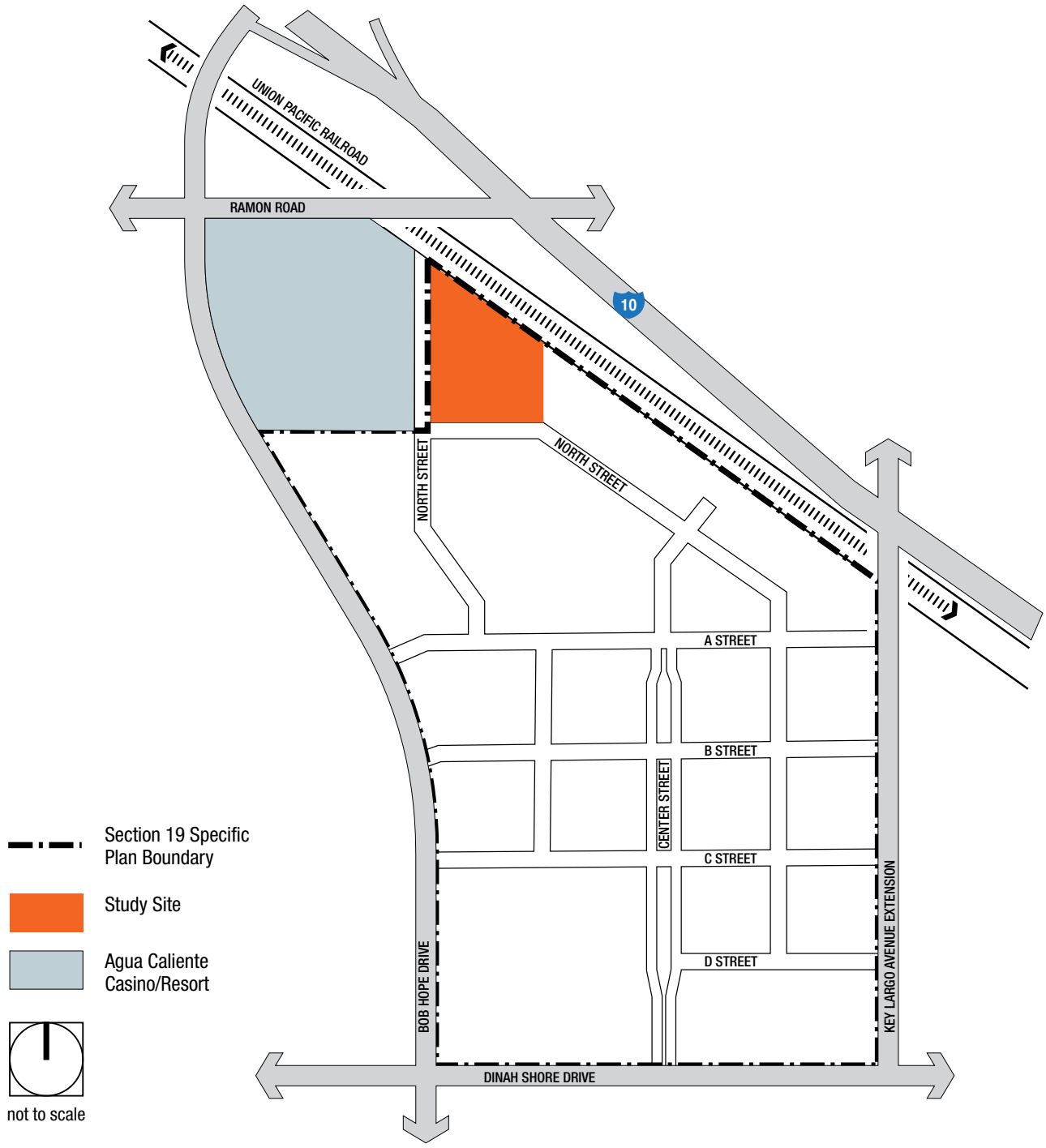
The site is located within the boundaries of Section 19 Specific Plan. In February, 2010, the City of Rancho Mirage adopted the Section 19 Specific Plan to foster the creation of a new mixed use destination, located at the northern gateway of the community and adjacent to the Agua Caliente, Resort and Casino and the Interstate Highway 10 interchange at Bob Hope Drive. The Section 19 property offers an opportunity to bring a more vibrant dynamic of living, working and shopping to the Coachella Valley, and the Section 19 Specific Plan seeks to introduce a higher density mix of commercial, office, entertainment, hotel and residential uses within the context of a master planned town center.

Figure E.1 identifies the project site, the boundaries of the Section 19 Specific Plan, and land uses located adjacent to the project site.

Figure **E.1**

Project Site and Section 19 Boundaries

Rancho Mirage, CA



The purpose of this project is to identify interim uses for the project site that could be replaced or integrated into the multi-modal transit center when the facility is constructed and becomes operational. The City of Rancho Mirage has identified an area of focus related to the potential feasibility of implementing renewable energy generation uses (solar, wind, etc.) as interim uses for the study site until such time that implementation of the multi-modal transit center is initiated. Based on discussions with the City, this effort also examines the potential for implementation of vehicular parking facilities to serve the adjacent Agua Caliente Resort and Casino and/or other land uses planned as part of the Section 19 Specific Plan.

Renewable Energy Case Studies

Transition from interim to permanent use would be best addressed by implementing a preliminary phasing scheme that provides flexible renewable energy solutions now that could also be built into the proposed transit center. Designing modular and/or movable design solutions would allow the renewable energy systems to be incorporated into the transit center design. Two examples of interim renewable energy use projects include:

- Portable Solar: MATC Solar Power Project – Milwaukee, Wisconsin: In August 2010, the Milwaukee Area Technical College (MATC) and Johnson Controls Inc., a large technology and industrial company who specializes in energy optimization, completed one of the largest photovoltaic projects in Wisconsin. Built on a capped city landfill, the project provides a Photovolatic Education Laboratory for MATC students, and acts as a demonstration project for renewable energy and interim projects nationwide.
- Portable Wind: Windy City Green Power: Two green non-profit companies in Chicago, Delta Institute and Windy City Green Power, teamed together to encourage green brownfield site revitalization in the Great Lakes area through harnessing wind power through small (60kw) wind turbines that can be utilized without significant excavation or disturbance to project sites.

In addition to these interim use concepts, a series of case studies were identified to understand how renewable energy projects have been implemented elsewhere in the United States in conjunction with transit and parking facilities and what have been the pros and cons of these examples. The case study research also provides a better understanding of the benefits, challenges, and implications of implementing a renewable energy facility. The research was conducted on case studies illustrating other renewable energy projects, either interim or permanent, associated with parking or transit facilities. The case studies used to illustrate various renewable energy facilities are summarized in Table E-1.

Table E-1 Summary of Case Studies

Category	Case Studies
Solar Energy	• Santa Monica Civic Center Parking Structure • Las Vegas Bonneville Transit Center • Google Headquarters Solar Parking Lots • Mountlake Terrace, WA Transit Center • Belmar Mixed-Use Development
Wind Energy	• Lafayette, IN City Bus Administration Building • Harvard Soldier Fields Parking Garage • Cape Cod Regional Transit Authority Operations Center
Geothermal Energy	• Knoxville Station Transit Center • Canopy Airport Parking (Denver International Airport)

Based on a review of these case studies, as well as an assessment of the energy generating potential of each technology at the project site, solar energy was identified as the most viable and potentially productive form of renewable energy generation to consider for this study.

Interim Use and Build-Out Alternatives

The analysis of the project site was focused on the identification of alternatives for an interim use condition, centered on opportunities for renewable energy generation and parking facilities, and how the recommended interim use could potentially transition to a build-out use that incorporates the proposed multimodal transit center and other mixed-use development opportunities that would be compatible with the transit use and the Section 19 Specific Plan.

The vision for this study is the identification of a viable interim use for the site that involves the implementation of a renewable energy generation facility. There are several potential benefits associated with implementing this type of facility. These benefits include:

- The potential to provide a reliable, environmentally friendly, and cost-effective power source to a dedicated user or as a renewable energy source for customers located throughout the city.
- The opportunity for CVAG to lease the property for an interim time period (15-20 years) and receive revenue that could be used in the construction of the planned transit center.
- The creation of a renewable energy demonstration project with a model that could be replicated elsewhere in the City of Rancho Mirage and Southern California as public agencies examine interim uses for publicly-owned properties.

Under the proposed interim use concept, CVAG would lease its property to a developer who in turn would construct the solar facility. The developer would then look to enter into a power purchase agreement (PPA) with a dedicated user of the electricity generated by the solar facility. In this case, potential customers for the power generated on the project site could be the Agua Caliente Resort and Casino, or the power could be purchased by the City of Rancho Mirage to serve as a renewable energy source for customers in the city.

Connection to the Imperial Irrigation District (IID) electric grid was also analyzed for this interim condition. There are challenges with this approach, given the distance of the project site to the nearest substation (greater than one mile away) and the significant connection costs that would be incurred by an energy developer ($1 million) if this option were to be pursued.

Four concepts were studied for the potential interim and build-out development of the project site, providing varying levels of land development and renewable energy generation potential. In all cases, the concepts would be consistent with the Section 19 Specific Plan, but provide the City of Rancho Mirage and CVAG with different approaches to providing public transit facilities, parking facilities, and allocating space for adjacent mixed-use development.

Table E-2 provides a comparison of the Interim Use Concept and the three build-out alternatives in terms of their development and energy generation yields. Graphical illustrations of the site plans for each alternative are provided in Section 6.0 of this report. One item to note is that the Interim Use Concept has been described and analyzed with 280W PV panels, while the build-out alternatives assume 240W PV panels. The 280W do provide slightly higher yield for a slightly higher cost than 240W panels. It is likely that any developer of a renewable energy project would chose either rating of panels based on the observed rates for production and cost present

at the time of construction. Presentation of two different items here allows for illustration in the range of potential products that could be utilized.

Table E.2 – Comparison of Interim Use Concept and Mixed-Use Build-Out Alternatives

	Interim Use Concept	Alternative 1	Alternative 2	Alternative 3
Proposed Solar Energy Generation Program				
Number of PV Modules	11,600 (Moser Baer 280W)	5,110 (Moser Baer 240W)	3,738 (Moser Baer 240W)	4,515 (Moser Baer 240W)
Watts DC STC	3,248,000	1,226,400	897,120	1,083,600
Watts CEC AC	2,663,400	1,035,478	760,133	865,900
KWH Annual	5,395,599	1,955,095	1,421,389	1,575,852
Energy Yield Rank Order	First	Second	Fourth	Third
Energy Generation Efficiency Rating	100.0%	36.2%	26.3%	29.2%
Proposed Land Development Program				
Transit Station Building (sqft)	n/a	7,500	7,500	7,500
Mixed Use Buildings (sqft)	n/a	45,000	128,500	78,000
Total Building Area (sqft)	n/a	52,500	136,000	85,000
Floor Area Ratio	n/a	0.10	0.27	0.17
Build-Out Parking	n/a	247 spaces	412 to 742 spaces	696 spaces
Parking Ratio	n/a	4.65/1000 sqft	3.02/1000 sqft (surface only) 5.46/1000 sqft (structured)	8.2/1000 sqft
Development Yield Rank	n/a	Third	First	Second
Development Efficiency Rating	n/a	39.7%	100%	64.4%

Notes:
PV - Photovoltaic
DC – Direct Current
AC – Alternating Current
KWH – Kilowatt Hours
STC - Factory Standard Test Conditions
CEC – California Energy Commission
sqft – Square Feet

Financial Analysis

The financial analysis of each alternative includes a pro-forma that considers the costs and potential revenues in the interim and build-out conditions. There is also potential for the interim use concept to provide carbon offsets or serve as environmental mitigation for greenhouse gas (GHG) impacts associated with potential adjacent development. The carbon offset concept is an emerging opportunity associated with the cap and trade program envisioned in Assembly Bill 32 (AB 32) that is scheduled to become active on January 1, 2013.

The financial analysis is designed to test the financial feasibility of each of the potential designs, associated servicing and infrastructure in broad terms, and operations of the alternative. The financial viability of the project is central to the success of a recommended concept.

The objectives of the costing and financial analysis, outside of assessing the feasibility of each alternative, are to understand the economic potential of an interim use on the project site and to compare three alternative development scenarios based on variations to the development schedule of construction and anticipated returns to the project.

The results are presented in terms of net present value (NPV) associated with each of the four development options under both the Interim Use and buildout use time frames. As previously stated, the Interim Use only includes the construction and operation of the energy park while the buildout use incorporates the mixed-use development beginning in 2034.

The net present value calculation was completed at the end of the analysis on the net income after debt servicing was established. While the operations of each of the three alternatives operate at a profit, once the debt servicing payments are included, those operating gains turn to losses. The results indicate that the implementation of any of the three alternatives will be incredibly costly. While the operations of the development function at a profit, the significant capital costs that will be a realized during the construction period are not offset but the positive operating returns.

Several options exist that could make any of the three buildout alternatives viable. The primary option would be to pursue grant funding for construction of the transit center and a portion of the parking facilities. These are significant elements in the construction cost (likely greater than $2 million).

Table E-3 Summary of Results by Alternative (NPV)

Alternative	Net Income (20 years)	Net Income (30 years)
Interim Use Concept	($ 1,623,814)	N/A
Alternative 1	($ 3,955,448)	($ 1,439,441)
Alternative 2 (without structured parking)	($ 9,633,273)	($ 4,965,726)
Alternative 2 (with structured parking)	($ 17,991,573)	($ 15,802,346)
Alternative 3	($ 12,503,376)	($ 11,505,127)

While the Interim Use concept is not forecasted to generate a profit within the 20 year analysis horizon, other outside factors could provide financial benefits for the project and increase its financial viability. AB 32, the Global Warming Solutions Act of 2006, creates a multi-year program intended to reduce GHG emissions within California to 1990 levels by the year 2020. Cap-and-trade, a policy authorized by and emanating from the principles of AB 32, creates a market for GHG emission allowances (California Greenhouse Gas Emissions Allowances), which are designed and distributed as a mechanism to help manage down offenders' emissions over time.

The planned compliance start date for the cap-and-trade program is January 1, 2013. It is possible that an interim renewable energy generation facility of the project site could qualify as a "covered entity" that "first deliverers of electricity and electricity generating facilities located in California". With this qualification a renewable energy generating facility on the project site could obtain carbon credits that could be sold on the market established as part of the cap-and-trade program. Depending on the market price for the Greenhouse Gas Emissions Allowances, the project may be able realize a financial gain from participation.

Summary of Findings

This study has examined the feasibility of implementing an interim renewable energy generation facility on a proposed multi-model transit center site. The current anticipated construction date for the transit center is beyond 20 years, creating an opportunity for the interim use of the site over a 15 to 20 year time period. Based on a review of the site opportunities and constraints, potential users of the electricity generated on-site, and case studies of similar projects, a solar energy generation facility was identified as the most viable energy generating interim use.

The proposed interim use would involve the installation of 11,600 solar PV panels over the CVAG-owned multi-modal transit center site and an adjacent site proposed for a future retention basin as part of the Section 19 Specific Plan. The solar energy generating facility would be capable of producing nearly 5.4 million KwH of electricity on an annual basis, assuming the use of 280W PV panels.

A financial analysis of this proposed facility was completed, assuming that a private developer would lease the land from CVAG and sell the power generated on-site. While the financial analysis did not show a positive return on the initial invest for a potential developer of the solar energy generating facility, there are opportunities for the site to participate in the upcoming cap-and-trade program that will be implemented in the State of California as part of the AB32 legislation. The ability to sell Greenhouse Gas Emissions Allowances or carbon credits that could be assigned to this use under the cap-and-trade program could assist in changing the financial picture of the project to one that would provide positive returns. Other factors that could influence the viability of the interim use project include the rate for selling power generated on-site and the ability of the developer of the facility to qualify for and utilize tax credits or other renewable energy incentives offered by the state and federal governments.

In addition to the interim use concept, three build-out alternatives were developed and analyzed for the project site. The financial analysis completed for each of these three alternatives considered construction of the projects beginning in 2034, following the interim use period described above. In each case, the proposed development alternative would not result in a profit. However, it should be noted that the financial assumptions did not consider the potential for grant funding to be used for the construction of the transit center and its associated parking facilities. The financial analysis also considered current commercial lease rates in the Coachella Valley for the retail and offices uses. These rates are currently very depressed as part of the economic conditions of the past few years. Assuming future improvements in commercial lease rates in the Coachella Valley and the potential for grant funding sources to cover all or part of the cost of the transit center, it is possible that one or more of the build-out alternatives could become financially viable in the future.

Action Plan

Based on the findings of this study we have identified the following Action Plan for the City of Rancho Mirage and other stakeholders in this study effort to follow should the city decide to pursue the interim use concept. Actions are identified as near-term (1-3 years), mid-term (3-10 years) and long-term (10+ years). The reasonable or involved agencies are identified in parenthesis after each action.

Near-Term Actions

- Determine the level of interest possessed by the Agua Caliente Resort and Casino to be a potential customer for the power generated on-site under the interim use condition (Rancho Mirage, Agua Caliente).
- Examine the feasibility of the City of Rancho Mirage purchasing power from the facility to supply to customers in the city to provide a cost-effective and local source of renewable energy. (Rancho Mirage)
- Monitor the implementation of the planned cap-and-trade program in California as part of AB32 to determine if this program could provide a financial benefit for an interim renewable energy use at the site (Rancho Mirage).
- Identify a reasonable lease rate for the CVAG property should an interim use be implemented by a developer or the city on the site (CVAG, Rancho Mirage).
- Identify potential developers for the interim use concept, potentially through the release of a request for proposals to develop the interim use (Rancho Mirage).

Mid-Term Actions

- Select a developer and enter into a lease agreement with the developer to construct the interim solar energy generation facility (Rancho Mirage, CVAG).

Long-Term Actions

- Reassess the build-out development potential for the site with mixed-use development based on progression of development on adjacent parcels under the Section 19 Specific Plan (Rancho Mirage).
- Identify and pursue grant funding opportunities for the construction of the transit station building, platforms, and parking (CVAG).

1.0 INTRODUCTION

The objective of this project is to explore the feasibility of implementing an interim renewable energy facility on an undeveloped parcel of land owned by the Coachella Valley Association of Governments (CVAG) that is proposed as a future transit center. This project was initiated by the City of Rancho Mirage under the Southern California Association of Governments (SCAG) Compass Blueprint program.

The Compass Blueprint program provides cities with funding to conduct planning studies that advance ideas and proposals that are consistent with regional planning goals to accommodate future growth while reducing traffic congestion and greenhouse gas (GHG) emissions.

The identified project site is an 11.49 acre undeveloped parcel located within the City of Rancho Mirage and within the boundaries of the Section 19 Specific Plan. Specifically, the parcel is located directly south of the Interstate 10 freeway and Union Pacific rail corridors, and east of the Agua Caliente Resort and Casino and the new I-10 interchange at Bob Hope Drive. Boundaries of the project site and the Section 19 Specific Plan are shown in Figure 1.1 on the following page. The development of the multi-modal transit center is not anticipated to occur for the next fifteen to twenty years, and the City of Rancho Mirage approached SCAG with a proposal to analyze the feasibility of an interim use for this parcel until the multi-modal transit center can become a reality.

The key focus of the study effort is to identify interim development concepts that are financially feasible and do not impact or preclude the transition of the project site from the interim use to the planned future multi-modal transit center. Alternatives include utilizing the site for a mix of uses including renewable energy and mixed-use office/commercial space, as well as purely as a renewable energy park.

This report contains the following elements:

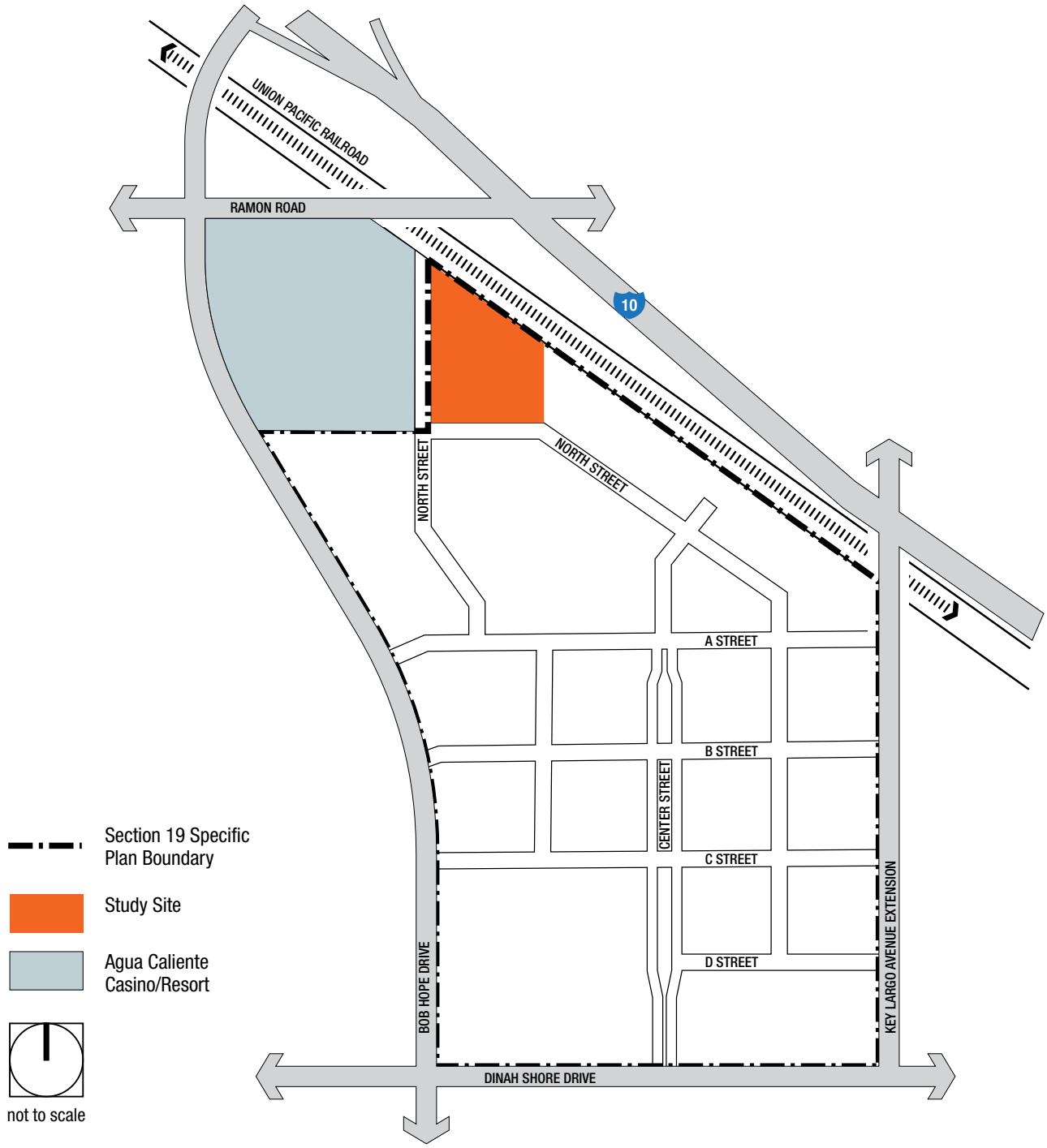
- A discussion of the existing conditions for the site, including an overview of the Section 19 Specific Plan goals, current zoning and general plan, circulation, and physical planning considerations
- A discussion of interim projects as a whole with examples of similar renewable energy interim projects
- Case studies of reneweable energy projects associated with transit facilities
- A discussion of four project alternatives for the site
- Financial analysis of the four alternatives
- Conclusion and recommendations

The City of Rancho Mirage identifies solar and wind energy as two “major and potentially significant alternative energy resources” within the City. Particular reference is made to solar energy, noting that the region has one of the highest insolation values in the nation. Furthermore, the City encourages the use of photovoltaic systems as new development occurs, which can both expand economic opportunities and provide environmental enhancement.

Figure 1.1

Project Site and Section 19 Boundaries

Rancho Mirage, CA



1.1 Background

In February, 2010, the City of Rancho Mirage adopted the Section 19 Specific Plan to foster the creation of a new mixed use destination, located at the northern gateway of the community and adjacent to the Agua Caliente Resort and Casino and the Interstate Highway 10 interchange at Bob Hope Drive. The Section 19 property offers an opportunity to bring a more vibrant dynamic of living, working and shopping to the Coachella Valley, and the Section 19 Specific Plan seeks to introduce a higher density mix of commercial, office, entertainment, hotel and residential uses within the context of a master planned town center.

The unique blend of land uses proposed under this Specific Plan will allow for the development of up to approximately 3 million square feet of commercial, retail, office, restaurant and entertainment uses, as well as up to 1,899 residential units and 580 hotel rooms. The three defining features of the Section 19 Specific plan are:

1. its relatively intense mixed use nature;
2. its focus on a four-acre central esplanade; and
3. its sensitive and creative design approach which responds to the desert environment sustainability issues.

Thus, the Section 19 Specific Plan outlines a highly relevant future vision for development in the City of Rancho Mirage along the Interstate 10 corridor and adjacent to the Agua Caliente Resort and Casino.

1.2 Project Description

Prior to construction of the multimodal transit center, the City of Rancho Mirage is working to explore potential interim development of the transit center site consisting of uses that would:

1. Complement the adjacent land uses included within the Section 19 Specific Plan; and
2. Serve as a model for sustainable development and strategies that assist in reducing greenhouse gas (GHG) emissions.

Key stakeholders in this process include the City of Rancho Mirage, CVAG, the Agua Caliente Band of Cahuilla Indians, and SCAG. The first three noted stakeholders actively participated in the Section 19 Committee during the development of the Specific Plan, and the continued involvement of these stakeholders in this process is essential to ensure thorough consideration of project alternatives.

The purpose of this project is to identify interim uses for the project site that could be replaced or integrated into the multi-modal transit center when the facility is constructed and becomes operational. The City of Rancho Mirage has identified an area of focus related to the potential feasibility of implementing renewable energy generation uses (solar, wind, etc.) as interim uses for the study site until such time that implementation of the multi-modal transit center is initiated. Based on discussions with the City, this effort also examines the potential for implementation of vehicular parking facilities to serve the adjacent Agua Caliente Resort and Casino and/or other land uses planned as part of the Section 19 Specific Plan.

A key focus of this work effort is the identification of interim development concepts that are financially feasible and do not impact or preclude the transition of the project site from the interim use to the planned future multi-modal transit center. While the focus of this analysis is on potential interim uses related to renewable energy generation and parking, opportunities for the interim uses to transition to permanent elements of the planned future multi-modal transit center are also highlighted.

2.0 EXISTING CONDITIONS

The project site, as shown in Figure 1.1 in the previous section, is located in the northwest corner of the Section 19 Specific Plan boundary and referred to as Planning Area (PA) 3.01 in the Specific Plan. This Planning Area is designated for public facilities in the form of a multi-modal transit center or open space. The project site is bordered by Agua Caliente Resort and Casino to the west, the Union Pacific Railroad corridor to the north, and undeveloped parcels designated for open space and mixed-use development to the east and south.

The site is generally flat and currently vacant. While there are no physical obstructions on the site, visibility of the site from adjacent transportation corridors, including the I-10 freeway and Bob Hope Drive, is limited due existing landscape screening along the freeway and Union Pacific Railroad corridor and the presence of buildings associated with the Agua Caliente Resort and Casino.

Access to the project site is provided by the planned "North Street", which offers a fully-signalized planned connection to Bob Hope Drive. Existing transit services within the vicinity of the site include SunLine Transit Authority Route 32, which travels between Rancho Mirage, Thousand Palms, and Cathedral City via Bob Hope Drive, Dinah Shore Drive, Monterey Avenue, and Ramon Road. The project is also located adjacent to the Union Pacific Railroad corridor, which is served by Amtrak's Sunset Limited long-distance rail service between Los Angeles and New Orleans. Trains operate three days each week, stopping nearby in Palm Springs.

2.1 Site Plan Opportunities and Constraints

Review of the adopted Section 19 Specific Plan reveals the following Site Plan Opportunities and Constraints, which are summarized in Figure 2.1.

- Wind and blowsand mitigation buffers are recommended along western property line;
- A Class I pedestrian, bicycle and golf cart path/ loop is recommended to run along the drainage channel, North Street and west/ east property lines;
- A 20 foot landscaped setback from the adjacent drainage channel and stormwater retention basins is recommended;
- North Street will be classified as a Minor Collector within a 94' ROW, with four travel lanes at 12' each and 8' parallel parking lane on each side;
- A SunLine Transit route and stop is located on North Street along the south property line of the parcel;

Figure **2.1**

Project Site Opportunities and Constraints

Rancho Mirage, CA

Building Setbacks: 14' from back of curb at Minor Collector, 20' from drainage channel, 10'-20' Building to Building;

- Maximum Building Height: 32'-60';
- Maximum Parking Structure Height: 30' (50' with subterranean parking);
- Maximum Building Floor Area Ratio (FAR): 0.70;
- Maximum Lot Coverage: 40%;
- Parking Standards: 3.0 spaces/ 1,000 SF GLA for General Retail, 10.5 per 1,000 for Family Restaurant (Standard), 15.0 per 1,000 for Fast Food Restaurant, 3.5 per 1,000 for General Office;
- Parking lot design requires one tree per 4 spaces, with 90 degree parking stalls at 9' by 18' and 45 degree stalls at 9' by 19';
- A 60' pedestrian bridge/ ramp is required across drainage channel to serve rail passenger access to/ from Transit Center;
- A Stand Alone Tower Element with a maximum height of 50' with a 400 SF footprint is permitted, higher with a CUP; and
- A Freeway signage element up to 100' in height is allowed, and is to be designed as a four-sided obelisk which includes the City of Rancho Mirage and CVAG Transit Center logos as well as signage for major users/ tenants of Section 19 properties.

These design standards and guidelines form the basis for the design of alternative site and building development plans for Parcel 3.01 as addressed within this project.

2.2 Permitted and Conditional Uses

The Section 19 Specific Plan currently identifies the Use Category of Parcel 3.01 as "Public Facility". Permitted Uses in this Category include:

- Rail Stations and Terminals;
- Stand-Alone Tower Elements (50' high obelisks/ clock towers/campaniles);
- Bus Stations or Taxi Stands;
- Alternative Fuels and Recharging Facilities;
- Restaurants (Specialty and Standard);
- Retail Stores (General Merchandise);
- Retail Accessory Uses and Structures (e.g. Storage);
- Office/ Service Accessory Uses and Structures;
- Automated Teller Machines (ATM); and
- Open Space (public or private).

Conditionally Permitted Uses that currently can be approved through a Conditional Use Permit (CUP) include:

- Convenience Stores;
- Fast Food Restaurants;
- Mixed Use (vertically or horizontally attached);
- Wireless Facilities;
- Satellite Antennae;
- Public Utility Facilities;
- Community Cultural Centers;
- Government Offices;
- Libraries and Museums;
- Police Stations;
- Post Offices; and
- Businesses operating between 10:00 PM and 6:00 AM.

The above menu provides for a basic Mixed Use Development (MXD) approach to the development of Parcel 3.01. However, the City of Rancho Mirage may want to consider a Section 19 Specific Plan Amendment which would allow a somewhat broader range of Permitted and Conditional Uses which are consistent with adjacent Regional Mixed Use parcels and which also complement the ultimate Transit Center use of this parcel. Additional Permitted Uses that may want to be considered for inclusion are:

- Health/ Fitness Centers;
- Professional Offices (Lab and/or Educational Facility);
- Warehouse Retail Stores;
- Plant Nurseries;
- Business Support Services; and
- Personal Services.

Additional Conditionally Permitted uses that may want to be considered through a Conditional Use Permit (CUP) include;

- Indoor Entertainment/ Amusement Centers;
- Service Stations; and
- Recycling Facilities- small collection facilities.

A Mixed Use Development (MXD) approach to the phased development of Parcel 3.01 could create a more dynamic mix of on-site economic activities which could complement and support the Transit Center primary end-use of the property. In addition, the potential user demand for on-site alternative energy generation could be accelerated and increased.

3.0 INTERIM USE OPPORTUNITIES

Interim land use projects provide property owners an opportunity to offset financial burdens while waiting to develop land for its highest and best use. Interim land use projects can include a range of projects such as urban farms and community gardens, skate parks, art spaces, parking lots and open-air markets.

Source: Street Lab

In many cases, interim land use projects are implemented for a short-term horizon (for example 1-5 years). One example is Street Lab, a program in Boston that is utilizing vacant spaces in existing buildings for temporary use for projects such as "Uni," a portable "institution in a box," made to be accessible to the public at street level – encouraging reading and education[1].

The implementation of a energy generation project as an interim use has not been as widespread as other kinds of interim use projects. This condition is likely a result of the amount of capital needed to implement a renewable energy project, and the amount of time needed to see a return on investment. However, the this project is somewhat different from typical interim use projects, in that it has a longer time horizon (15-20 years), which could provide the necessary time to result in a return on the original investment required to construct the renewable energy project. Furthermore, the property owner (CVAG) has the option to lease the site out to a developer, removing the interim financial burden associated with traditional land banking and construction of the energy park.

Given the current rate of advancement in renewable energy technology, the implementation of a smaller scale solar energy generation facility also lends itself to being an interim use over a 20 year period. It is possible that solar energy generation technology would advance enough in the next 20 years that the level of advancement would justify replacement and/or modification of the facility implemented on the project site whether or not it was intended as an interim use.

3.1 Transition from Interim to Permanent Use

Transition from interim to permanent use would be best addressed by implementing a preliminary phasing scheme that provides flexible renewable energy solutions now that could also be built into the proposed transit center. Designing modular and/or movable design solutions would allow the renewable energy systems to be incorporated into the transit center design. For example, the panels could be mounted into a ballast base, which is strong and supportive, but also very flexible in terms of placement. Portable solutions have also been created for photovoltaic panels, providing another option for implementation on an interim basis.

1. *www.bostonstreetlab.com*

3.2 Example Interim Use Projects, Programs, and Policies

The following interim use projects, programs and policies are provided as examples and case studies for the project site. The projects are examples of interim renewable energy projects in Milwaukee and Chicago.

Portable Solar: MATC Solar Power Project – Milwaukee Wisconsin

In August 2010, the Milwaukee Area Technical College (MATC) and Johnson Controls Inc., a large technology and industrial company who specializes in energy optimization, completed one of the largest photovoltaic projects in Wisconsin. Built on a capped city landfill, the project provides a Photovolatic Education Laboratory for MATC students, and acts as a demonstration project for renewable energy and interim projects nationwide. The project showcases a solar charging station for plug-in vehicles, a solar powered highway sign, demonstration, and training areas for solar installers and electricians, and is completely portable. Each photovoltaic unit has large hooks in the concrete pads that support the photovoltaic panels that can be used to move the 8,000 lb blocks.[2] The project supplies approximately 411 kilowatts of electricity[3] through 2,590 photovoltaic panels[4], and cost $7.1 million to construct.[5]

Portable Wind: Windy City Green Power

Two green non-profit companies in Chicago, Delta Institute and Windy City Green Power, teamed together to encourage green brownfield site revitalization in the Great Lakes area through harnessing wind power through small (60kw) wind turbines that can be utilized without significant excavation or disturbance to project sites. These wind turbines have been used for powering commercial construction sites, homes, and in small urban energy wind farms. The project was able to obtain implementation funding grants from the Environmental Protection Agency (EPA).[6]

2. *Content, Thomas, "MATC keeps current with the sun," Journal Sentinel, http://www.sjonline.com/business/9972813.html*
3. *Content, Thomas, "MATC, Johnson Controls to build state's largest solar power project," Journal Sentinel, http://www.sjonline.com/business/63009642.html*
4. *http://www.aashe.org/resources/campus-solar-photovoltaic-installations/detail/milwaukee-area-technical-college-2010/*
5. *Ibid. "MATC keeps current with the sun."*
6. *http://delta-institute.org/sites/default/files/Case_Study_Sustainable_Reuse_of_Brownfield_Site_for_Small-Scale_Movable_Wind_Farm.pdf*

4.0 RENEWABLE ENERGY STRATEGIES

The City of Rancho Mirage is looking at options for an interim renewable energy generation facility that could be implemented on a short-term (10-20 year) basis or integrated as a permanent feature into a proposed future multi-modal transit center. The menu of renewable energy sources currently utilized in California includes solar energy, wind energy, hydro power, biomass, geothermal energy, and ocean/tidal currents. Of course, the appropriate type of renewable energy project depends on several factors, most of important of which is access or proximity to the source of the renewable energy power. Within the Coachella Valley, solar, wind and geothermal energy generation projects are present and could be considered as viable sources of renewable energy generation for the project site.

A key element in planning for and evaluating the potential for renewable energy use on the project site is the capability of the system to be integrated into the future multi-modal transit center planned for the site. In the case of the project site, the primary focus is on the implementation of a solar energy project that would generate electricity for a defined user, either on-site or located adjacent to the project site. Connection to the public utility grid, in this case owned and operated by Imperial Irrigation District (IID) is a more complex process. This type of connection is more appropriate for a stand-alone renewable energy project, not a case where it is desirable to keep the renewable energy generated on-site for an existing or adjacent user.

A self-generation facility allows for more flexibility for the individual user, functioning to provide a portion or even all of a user's energy needs and reducing reliance on the electrical grid. Connection to the SCE electrical grid can still occur in a self-generation condition through the completion of a Net Metering Application and interconnection agreement, but the user is able to manage their on-site renewable energy source and energy usage more directly in this case. This is the recommended approach for this project given the flexibility and level of control provided by self-generation.

4.1 Case Studies

With the parameters outlined above in mind, a series of case studies were identified to understand how renewable energy projects have been implemented elsewhere in the United States in conjunction with transit and parking facilities and what have been the pros and cons of these examples.

The case study research also provides a better understanding of the benefits, challenges, and implications of implementing a renewable energy facility. The research was conducted on case studies illustrating other renewable energy projects, either interim or permanent, associated with parking or transit facilities. The case studies used to illustrate various renewable energy facilities are summarized in Table 4-1. As noted above, case studies are focused on solar, wind, and geothermal renewable energy projects as these sources are likely to be the most viable for the project site.

Table 4-1 Summary of Case Studies

Category	Case Studies
Solar Energy	• Santa Monica Civic Center Parking Structure • Las Vegas Bonneville Transit Center • Google Headquarters Solar Parking Lots • Mountlake Terrace, WA Transit Center • Belmar Mixed-Use Development
Wind Energy	• Lafayette, IN City Bus Administration Building • Harvard Soldier Fields Parking Garage • Cape Cod Regional Transit Authority Operations Center
Geothermal Energy	• Knoxville Station Transit Center • Canopy Airport Parking (Denver International Airport)

The objective of the case study research is to establish a knowledge base for the proposal of effective and practical interim renewable energy generation uses for the multi-modal transit center site. The case studies are categorized into three groups to provide examples of the different energy sources.

4.2 Solar Energy

Solar power is focused on converting energy created by sunlight and heat into energy used for electric power. There are two primary forms of solar power: thermal, converting heat into energy, and photovoltaic, converting sunlight into energy. Solar power generation can occur for a single user through the installation of an on-site energy generation system or be provided through the electric grid by a large commercial-scale energy generation facility. Individual case studies of solar energy projects are highlighted on the following pages.

4.3 Wind Energy

Wind energy presents a viable alternative to solar energy. This form of energy generation is common in the Coachella Valley, but is primarily used in larger commercial energy generation projects and is primarily located west of the project site in the San Gorgonio Pass where wind speeds are more consistent and sustained within the minimum levels desired for consistent energy production. Self-generation wind facilities are less common.

The installation of a wind energy project requires proper study and evaluation to judge the potential performance of the system. Wind turbines are capable of producing large amounts of power but require a certain range of wind speeds to be most effective. Low-speed and smaller turbines may not be cost effective if the proper conditions are not present for consistent energy generation. Energy production is also subject to large variability due to the non-uniformity of wind conditions.

Examples of self-generation wind energy projects are highlighted in the following case studies.

4.4 Geothermal Energy

Geothermal heating and cooling systems use heat stored beneath the Earth's surface to more efficiently heat or cool water and air relative to conventional air-source heat pumps. These systems can be constructed for commercial, larger scale energy generation or in a self-generating condition. Geothermal energy generation facilities are present in the Coachella Valley and in nearby Imperial County. However, there are no current examples located in close proximity to the project site.

Two case study geothermal energy generation projects are profiled on the following pages. In both cases, the geothermal energy systems have been implemented in conjunction with otherrenewable energy infrastructure (solar, etc) and are primarily used for heating and cooling systems.

Figure **4.1**

Santa Monica Civic Center Parking Structure

333 Civic Center Drive - Santa Monica, CA

SOLAR ENERGY

Overview

The Santa Monica Civic Center Parking Structure is the first LEED certified parking structure in the nation. Located within close proximity to City Hall, government buildings, 3rd Street Promenade, Santa Monica Place, and Santa Monica's Central Business District, the structure reflects the City's focus towards environmental and aesthetic concerns. The 300,000 square foot mixed-use structure provides 9,000 square feet of ground retail space, 900 parking spaces, and 14 spaces designated for electric vehicles.

Implementation Process

The parking structure was a $29 million project that features eco-friendly materials, solar photovoltaic panels, and a water treatment and management system. There are 19,200 square feet of 213 kW DC solar photovoltaic panels installed on the roof to provide electricity for the facility and also act as shade for the top level. The solar power inverter converts direct current generated from the photovoltaic panels into alternating current for use in the facility. Reflective glass panels decorate the structure, maximizing natural light and reducing electricity consumption.

Level of Success/ Viability

The structure opened to the public in May 2008. The installation of the photovoltaic panels cost $1.5 million, and the City estimates that the parking structure will be profitable within 15 years, generating $90,000 a year in electricity.

Stats

- 900-space, six-story parking structure
- 300,000 square feet
- LEED Silver Certified

Cost

- The parking structure cost approximately $10 million more than comparable parking structures

Agency

- Client: City of Santa Monica
- Designed by Moore Ruble Yudell Architects

References

- City of Santa Monica website: www.smgov.net
- Architectural Record: http://archrecord.construction.com

Figure **4.2**

Las Vegas Bonneville Transit Center

101 East Bonneville Avenue - Las Vegas, NV

SOLAR ENERGY

Overview

The Bonneville Transit Center is located in the heart of Downtown Las Vegas, and designed to complement the redevelopment and revitalization of the downtown area. The 21,000 square foot structure features RTC administrative offices, 20 on-site bus bays, air-conditioned passenger waiting areas, canvas shade structures with solar panels, preferred parking spaces for hybrid vehicles, and a bike center with over 100 parking spaces for bicycles, bike repair shop, and lockers/shower rooms. The transit center serves as a central transfer point for various transit lines, including the Strip and Downtown Express, Centennial Express, Westcliff Airport Express, MAX, and the Boulder Highway Express line.

Implementation Process

The transit center cost $20.4 million and was built with funding from the Federal American Recovery and Reinvestment Act and the Federal Transit Administration. The building utilized recycled materials, energy-efficient cooling systems, and solar photovoltaic panels on the roof and on shade structures.

Level of Success/Viability

The transit center was completed Fall of 2010. The 3,800 square feet of solar panels produce 86,900 kWh per year. The solar energy is expected to provide approximately 50 percent of the transit center's energy and result in $8,400 in annual savings.

Stats

- 20 on-site bus bays
- 21,000 square feet
- LEED Gold Certified

Cost

- The U.S. Department of Transportation's Federal Transit Administration (FTA) paid $17.4 million of the project's $20.4 million total cost. FTA's share includes $5.5 million from the Recovery Act.

Agency

- Client: Regional Transportation Commission of Southern Nevada

References

- Regional Transportation Commission website: www.rtcsouthernnevada.com
- Federal Transit Administration website: www.fta.dot.gov

Figure **4.3**

Google Headquarters Solar Parking Lots

1600 Amphitheatre Parkway - Mountain View, CA

SOLAR ENERGY

Overview

The corporate headquarters for Google, Inc. is located in Silicon Valley and consists of 11 buildings totaling over 500,000 square feet. Parking is provided in a combination of surface parking spaces and underground parking spaces.

Implementation Process

In 2007, Google commissioned Energy Innovations to install over 9,000 pole-mounted solar panels throughout its two parking lots and on the roofs of eight buildings at their headquarters. Approximately 1/3 of the solar panels were installed in their two parking lots in the form of overhanging parking shades, many that will also provide plug-in access for hybrids and electric vehicles. In contrast to the tricky roof installation at Google, these solar parking shades are relatively simple to install and provide aesthetic appeal and utility to the paved dullness of typical parking lots.

Level of Success/Viability

Installed in 2007, the 9,000 plus solar panels are capable of producing1.6 megawatts of electricity, saving $393,000 in annual energy costs. The project will pay for itself in 7.5 years, and provide the power needed for 30% of the peak electricity demand in the solar-powered buildings.

Stats

- Surface parking lot
- Pole-mounted solar panels, or solar trees provide shelter from the rain and shade the path on hot days. Compared to roof mounted photovoltaic systems, solar trees are considerably easier and more cost efficient to install.

Agency

- Client: Google, Inc.
- Designed by Energy Innovations

References

- Google, Inc. website: www.google.com
- Murphy, Megan (2007) Google Powers up 1.6 MW Solar System and Hybrid Initiative. www.renewableenergyworld.com
- Graham, Marty (2006). Google Plants Solar Trees. www.wired.com

Figure **4.4**

Mountlake Terrace Transit Center

236th Street SW and Interstate 5 - Mountlake Terrace, WA

SOLAR ENERGY

Overview

The Mountlake Terrace Transit Center is operated by Community Transit, the main public transit authority in Snohomish County, Washington. Community Transit carries 40,000 passengers on an average weekday. The transit center was built to provide commuters with a park-and-ride facility totaling 890 spaces. In Spring of 2011, Sound Transit opened the Mountlake Terrace Freeway Station, which serves seven Community Transit routes, two Sound Transit routes, and one King County Metro route.

The transit center includes a covered pedestrian bridge between the parking structure and the station, covered bus shelters and waiting areas, bicycle lockers and racks, lighting and security cameras, and green construction, including recycled building materials and solar panels.

Implementation Process

This project was funded by the Snohomish County Public Utility District (PUD) in partnership with the Bonneville Environmental Foundation. Community Transit recently received a $425,000 federal stimulus grant for upgrades to the parking lot, including pavement improvements, enhancements to the upper parking lot, and new light poles and light fixtures.

Level of Success/Viability

Parking structure completed in 2009. The 32 photovoltaic solar panels covering 400 square feet are rated at 5.44 kW total and expected to offset 7,700 pounds of CO2 per year. The panels generate enough electricity annually to power an average home for nearly six months. A public information kiosk installed at the site provides information about the solar power project, including a real-time display of the energy generation.

Stats

- Structure located next to Interstate 5, just north of Seattle.
- Completed in 2009
- 660-space parking structure and 230-space surface lot

Cost

- Project funded by local and federal funds, including Snohomish County PUD, Bonneville Environmental Foundation, and federal stimulus grants.

Agency

- Client: Community Transit (Public Transit Authority in Snohomish County, Washington)

References

- Community Transit website: www.communitytransit.org

Figure **4.5**

Belmar Mixed-Use Development

408 South Teller Street - Lakewood, CO

SOLAR ENERGY

Overview

Belmar is a mixed use walkable community that includes 70 shops and 14 restaurants, entertainment, cultural activities, residential and office uses. The development area features many silver-level LEED certified buildings, an urban wind farm, and extensive amounts of solar panels along the roofs of parking structures.

Implementation Process

The development was led by a team consisting of Continuum Lakewood Development Company, in association with MMA Renewable Ventures, Oak Leaf Energy Partners, and SunPower Corporation. The development leveraged tax credits and incentives to finance the solar PV system through Colorado's New Energy Economic Development program and other state and local sources.

Level of Success/Viability

On three of the parking structures, 8,300 photovoltaic solar panels cover 190,000 sq ft. The 1.75 MW array generates 2.3 million kilowatt hours of electricity a year or approximately 5% of Belmar's energy consumption. This district also features solar powered parking meters and 14 wind turbines that will produce up to 700-900 kWh per month to help power lights for streets and parking structures.

The solar parking structure was deployed under a long-term power-purchase agreement, in which electricity sold to Belmar is competitively priced against retail rates, providing the development with a long-term hedge against rising peak power prices. The Belmar solar project received a rebate from Xcel Energy to offset upfront construction costs, as part of the company's Solar Rewards Program. Xcel will purchase the renewable energy produced at Belmar in support of Colorado's renewable portfolio standard, which requires large utilities to generate 20% of their power from renewable sources by 2020.

Stats

- 4,000 free parking spaces in a combination of parking structures and surface lots.

- QuickStop kiosks offer over 250 on-street spaces for $0.75 per hour.
- Mixed-use development completed 2005, solar panels installed October 2008

Agency

- Developed by Continuum Lakewood Development Company, in association with MMA Renewable Ventures, Oak Leaf Energy Partners, and SunPower Corporation.

References

- Belmar Colorado website: www.belmarcolorado.com
- Environmental Protection Agency website: www.epa.gov

Figure **4.6**

City Bus Administration Building

1250 Canal Road - Lafayette, IN

WIND ENERGY

Overview

The Greater Lafayette Public Transportation Corporation is believed to be the first transit system to employ renewable wind energy to power their facilities. Three 155 ft free standing wind turbines rated at 100 kW were installed to power their administration, storage, and maintenance facilities.

Implementation Process

City Bus hired Cascade Engineering, Inc. to install three Northern Power 100 model wind turbines that were purchased using a $2.18 million federal grant from the American Recovery and Reinvestment Act.

Level of Success/Viability

City Bus is expecting the three wind turbines to supply half of their electrical needs, resulting in $30,000-40,000 in annual savings. The switch to renewable wind energy from fossil fuels can save nearly 500 tons of carbon emissions a year.

Stats

- The 155-ft wind turbines measure 121-ft from base to hub, which is much larger than residential grade wind turbines but also much smaller 265-ft turbines used in rural areas.

Agency

- Client: Greater Lafayette Public Transportation Corp.
- Wind turbines produced by Northern Power Systems
- Installed by Cascade Renewable Energy, a division of Cascade Engineering, Inc.

References

- CityBus website: www.gocitybus.com

Figure **4.7**

Harvard's Soldier Field Parking Garage

111 Western Avenue - Boston, MA

WIND ENERGY

Overview

After three years of wind testing, gaining permits, designing, and site preparation, Harvard University installed two 10 kWh rated wind turbines at the top of a new 7-story 800-space parking structure. The wind turbines are a part of the University's dedication to sustainability and efficiency, which recently also includes a $2 million retrofit of high-efficiency lighting within the structure.

Implementation Process

The turbines weigh in excess of 1,000 pounds and were riveted to 40-ft 1-ton steel poles. Before being tipped onto the top of the parking structure, two-story tall tubular steel bases were installed to support the additional weight of the turbines.

Level of Success/Viability

The turbines are anticipated to generate a total of 20,000 kWh per year, which will account for approximately 5-10% of the garage's energy needs.

Stats

800-space, seven-story parking structure

The wind turbines create 23-ft diameter arcs that produce only 32-decibels of sound. The turbine's blades are attached to fiberglass bullet-shaped housing with tails and are capable of pivoting 360 degrees to seek out optimum wind currents.

The project qualified for funding from the Massachusetts Technology Collaborative's Renewable Energy Trust and was approved for an initial $13,500 rebate. A performance incentive will also be disbursed a year after production.

Agency

- Client: Harvard University and Harvard Real Estate Services
- Wind turbines produced by Bergey WindPower Co.
- Installed by North Shore Solar and Wind Power

References

- Harvard Real Estate Services: www.hbs.edu
- Ireland, Corydon (2009). Harvesting Watts From the Wind. Harvard Gazette. http://news.harvard.edu/gazette

Figure **4.8**

Chicago's Greenway Parking Garage

60 West Kinzie Street - Chicago, IL

WIND ENERGY

Overview

The Greenway Parking Garage is a LEED silver certified structure that features 12 vertical wind turbines to capture wind energy. The parking garage also implemented many sustainable aspects, including green roofs, rain cisterns, energy-efficient lighting, and natural ventilation via breathable glass channels, while also providing six electric-vehicle charging stations, sheltered bike parking, and first floor retail stores.

Implementation Process

The 16-ft high, 4-ft diameter vertical turbines were mounted as two columns of six turbines each at the south-west corner of the structure and collectively cost $300,000.

Level of Success/Viability

The twelve vertical turbines are expected to produce 10,000-15,000 kWh per year. However, the vertical turbines have not been performing as anticipated.

Stats

715-space, eleven story parking structure

288,900 square feet

LEED Silver Certified

The twelve vertical turbines can operate regardless of wind current and even work with wind speeds as low as 1-2 miles per hour. Each turbine weighs 1,400 pounds and will function silently in all wind situations.

Agency

- Client: Friedman Properties, Ltd.
- Designed by HOK
- Wind turbines produced by Aerotecture International Inc.
- Structural Engineer: Walker Parking Consultants
- Contractor: Bovis Lend Lease
- Precast Contractor and Structural Precaster: ATMI Precast
- Architectural Precaster: The Lombard Company

References

- Precast/Prestressed Concrete Institute website: www.pci.org
- Boyle, Rebecca (2010). Chicago Garage Fires Up Helical Wind Turbines for Attractive, Earth-Friendly Parking. PopSci website: www.popsci.com

Figure **4.9**

Cape Cod Regional Transit Authority's Operations Center

40 American Way - South Dennis, MA

WIND ENERGY

Overview

The Cape Cod Regional Transit Authority (CCRTA) installed a 100 kW rated 120-ft tall wind turbine at their operations center in December 2010. The CCRTA was able to implement their wind turbine project when funds were awarded by the Federal Transit Administration (FTA).

Implementation Process

The 120-ft tower is composed of three parts and was installed in a 16-ft deep concrete foundation. After installing the three blades of the propeller, the turbine structure reaches a maximum height of 159-ft.

After three months of use, the CCRTA realized the wind turbine was not achieving the expected capacity due to early cut out level of 27 miles per hour. The CCRTA acknowledged the issue and raised the cut-out point to generate more power.

Level of Success/Viability

The wind turbine is expected to produce 181,000 kWh annually or about 70% of the 257,000 kWh the operation center requires. Anticipated annual savings are between $30,000 and $35,000 , and the turbine is also projected to offset 257 tons of carbon emissions a year.

Using the energy cost savings, Cape Cod is able to cover the operating costs of drivers and gas, while also expanding bus service for the community. Overall bus ridership increased 6.8 percent between 2009 and 2010.

Stats

The 159-ft wind turbine project had a price tag of $700,000 but was fully funded by a federal grant through the American Recovery and Reinvestment Act.

Agency

- Client: Cape Cod Regional Transit Authority
- Wind turbine by Northern Power Systems
- Installed by Sustainable Energy Developments

References

- Muller, Nicole (2011). Transit Turbine Pays Off. Cape Cod Newsletter website: www.wickedlocal.com/capecod

Figure **4.10**

Knoxville Station Transit Center

301 Church Avenue - Knoxville, TN

GEOTHERMAL ENERGY

Overview

The Knoxville Station Transit Center is located in downtown Knoxville and is expected to provide citizens with better access to the downtown center and connections to East Knoxville. The LEED silver certified structure is highlighted by a geothermal heating and air-conditioning system in addition to other sustainability features such as 4.8 kW roof-mounted solar panels, green roof, and high efficiency glass. The 108,000 sq. ft. building features administrative offices, waiting rooms, training rooms, and a café.

Implementation Process

The transit center was a $29 million project that was funded 80% by the Federal Transit Administration, 10% by the Tennessee Department of Transportation and the remaining 10% through city funding.

Level of Success/Viability

Knoxville experiences climates that average in the high 80's during the summer and dip down to the mid 20's in the winter. The geothermal heating and air-conditioning system eliminates the need for a traditional HVAC system and will save the transit center 90% in heating and cooling costs.

Stats

20 bus bays located along the 710-ft long surface platform

108,000 square feet

LEED Silver Certified

Agency

- Client: Knoxville Area Transit
- Designed by Bullock Smith & Partners

References

- City of Knoxville website: www.ci.knoxville.tn.us
- Southern Alliance for Clean Energy website: www.cleanenergy.org
- Gibson, Mike (2010). The City of Knoxville's First Silver LEED-Certified Government Building is Way More than Just a Bus Stop. Metro Pulse website: www.metropulse.com

Figure
4.11

Canopy Airport Parking (Denver International Airport)

8100 Tower Road - Commerce City, CO

Overview

The Canopy Airport Parking is a 46-acre parking facility that was proclaimed to be the greenest parking facility in the world. Canopy Airport Parking features a 16.9 kW solar panel array, seven 300-foot boreholes for a geothermal heating and cooling system, and 9.6 kW rated wind farm consisting of eight wind turbines. The facility also utilized recycled asphalt and steel, porous pavement, and reflective roofing.

The facility serves the Denver International Airport and provides valet services, car-wash station, free shuttle service using their alternative fuel shuttles, and free charging stations for electric vehicles.

Implementation Process

The six solar arrays were placed on poles along the entry way toward the parking facility and seven 300-foot deep boreholes were drilled below the parking facility for the geothermal heating and cooling system. Eight 30-foot tall and 4-foot wide vertical wind turbines were also installed near the entrance of the parking facility.

Level of Success/Viability

The combination of solar panels producing 24,000 kWh per year, wind turbines yielding 7,200 kWh per year, geothermal heating and cooling system, and other energy-efficient building compositions makes Canopy Airport Parking 70% more energy efficient compared to a normal parking facility according to Architectural Energy Corporation. Efficiencies result in $92,000 in annual utility-cost savings.

The $32 million structure is expected to earn $5.1 million in net operating income on sales of up to $19 million a year.

Stats

500-space, 23,500 square feet indoor valet

1,000-space, 3 acre covered surface parking

2,700-space, 22 acre open-air parking

carbon footprint of any solar array. The wind turbine utilize rotors made of recycled aircraft grade aluminu operate silently.

Agency

- Client: Greenscape Capital Group, Inc. and ProF America
- Solar panels by Sharp Solar Electricity
- Wind turbines by Windspire Energy

References

- Denver International Airport website: www.canopyairportparking.com
- Miller, Amanda H. (2010). Denver International

5.0 TRANSIT CENTER CONSIDERATIONS

As noted earlier, a key objective of the renewable energy generation project is to integrate it with the future multi-modal transit facility proposed for the project site. The following section provides five case studies of multi-modal transit centers in Southern California, including scale, services provided, and characteristics. The purpose of these case studies is to provide a better understanding of the parking facilities and building types provided at other facilities in Southern California and how renewable energy facilities can be integrated into the transportation center.

Multi-modal transportation centers provide access to various modes of travel, including transit, bicycle, pedestrian, and automobile. These centers typically include an enclosed building and large parking facility to accommodate passengers. Amenities may include restaurants, restrooms, bicycle facilities, and other services such as car washes or valet. Transit centers can vary in size, from half an acre to over ten acres, depending on ridership and parking demand and desired amenities and facilities to be located on-site.

5.1 Transportation Center Profiles

Profiles of five multi-modal transit centers in Southern California are presented on the following pages. Each station was selected because of its size, array of transit services, and location within a predominately suburban area. Reviewing these transit centers provides the project team with an understanding of the potential site area, building space, and parking needs for a potential future multi-modal transit center located on the project site. This information allows us to understand our much area on the 11.49 site may be available for being occupied by renewable energy generation uses, and what size the future buildings and facilities may be in order to understand their potential corresponding annual energy use levels.

The profiled transit centers include the following:

- Fullerton Transportation Center
- Irvine Station
- Downtown Pomona Metrolink/Amtrak Station
- Solana Beach Coaster/Amtrak Station
- Oxnard Transportation Center

Case studies are presented on the following pages.

Figure **5.1**

Fullerton Transportation Center

120 East Santa Fe Avenue - Fullerton, CA

S.C. TRANSIT CENTERS

Overview

The Fullerton Transportation Center is located in the heart of Fullerton's historic downtown core and is one of the busiest train stations in Orange County. The station serves multiple transit services, including Amtrak and Metrolink rail service and OCTA bus routes. The station is within walking distance of the Central Business District and is surrounded predominately by commercial, industrial, and residential land uses.

Surrounding Land Uses and Amenities

The City of Fullerton is preparing a Specific Plan for the Fullerton Transportation Station that will focus on Senate Bill 375 and transit-oriented development principles. Plans include mixed-use development, residential development, and open/community space.

In addition to transit services, the station provides taxi services, an Amtrak ticket office, Metrolink ticket vending machines, information kiosks, restrooms, bicycle lockers, a restaurant and a gift shop. A pedestrian bridge with stairs and elevators connect the two platforms. Covered benches, trash receptacles, lighting, ticket validation machines, passenger information, telephones, and signs displaying train departure times are located on both platforms.

Size

- Fullerton Transportation Center - 1.5 acres
- Specific Plan site - 39 acres

Number of Parking Stalls

- 519 spaces total
- 164-space surface parking lot
- 298-space parking structure
- 290-space short-term surface parking lots
- Proposed 800-space parking structure

Transit Services

- Amtrak (Pacific Surfliner and Southwest Chief)
  - 23 trains on weekdays
  - 24 Pacific Surfliner trains on weekends, 2 Southwest Chief trains on weekends
- Metrolink (Orange County Line and 91 Line)
  - OC Line – 34 trains on weekdays, 12 trains on weekends
  - 91 Line – 19 trains on weekdays, no service on weekends

Figure **5.2**

Irvine Transportation Center

15215 Barranca Parkway - Irvine, CA

S.C. TRANSIT CENTERS

Overview

The Irvine Transportation Center is located within the Irvine Spectrum mixed-use commercial, light industrial, retail and entertainment activity center. The transit station is served by Amtrak and Metrolink trains, OCTA bus routes, and the Los Angeles International (LAX) FlyAway bus service.

Surrounding Land Uses and Amenities

The station is surrounded predominately by commercial, light industrial, mixed-use, and institutional uses. Future development adjacent to the station includes the Orange County Great Park. The OC Great Park development will provide habitat preservation, open space, and transit-oriented development.

Station amenities include an Amtrak ticket office, restaurant, passenger waiting areas, restrooms, bicycle racks, information kiosks, ticket validation machines, and security. A pedestrian bridge with stairs and elevators connect the platforms on either side of the tracks. Covered benches, trash receptacles, ticket validators, and lighting are located on both platforms.

Size

25.6 acres

Number of Parking Stalls

- 1,500-space parking structure
- 500-space surface parking lot for FlyAway service and overflow parking
- 150-space short-term surface parking lot

Transit Services

- Amtrak (Pacific Surfliner)
  - 22 trains on weekdays
  - 24 trains on weekends
- Metrolink (Orange County Line and Inland Empire-Orange County Line)
  - OC Line – 39 trains on weekdays, 16 trains on weekends
  - IEOC Line – 37 trains on weekdays, 16 trains on weekends
- OCTA (86, 188/188A, 206, 211, 480, 482, 758)
  - Daily service
- FlyAway Bus Service (To Los Angeles International Airport)
  - 12 trips daily

Ownership

Owned and operated by City of Irvine

Resources

- City of Irvine website: www.cityofirvine.org
- OCTA website: www.octa.net
- Metrolink website: www.metrolinktrains.com

Figure **5.3**

Downtown Pomona Station

101 West First Street - Pomona, CA

S.C. TRANSIT CENTERS

Overview

The Downtown Pomona station is located within a historic mixed-use, urban neighborhood, consisting of commercial, entertainment, light industrial, and institutional uses. The station is serviced by multiple transit agencies, including Amtrak and Metrolink trains, Foothill Transit, Omnitrans, and Cal Poly Pomona bus routes.

Surrounding Land Uses and Amenities

The station is located adjacent to Pomona's Antique Row and surrounded predominately by commercial and institutional uses. Several developments in the downtown area, including new residential buildings and commercial uses are contributing to the City's goal of creating a transit and pedestrian-oriented environment for the downtown area.

Station amenities include an Amtrak ticket office, passenger waiting areas, restrooms, bicycle racks, information kiosks and ticket validation machines. A pedestrian bridge with stairs and elevators connect the platforms on either side of the tracks. Benches, trash receptacles, and lighting are located on both platforms.

Size

0.45 acres (approximately 20,000 square feet)

Number of Parking Stalls

- 300-space surface parking lot
- 3 hour parking and $1.50 per day parking provided in front of station
- 26 reserved parking spaces leased by City on nearby surface lot

Transit Services

- Amtrak (Sunset Limited, Texas Eagle)
  - 3 trains a week (Sunday, Wednesday, Friday)
- Metrolink (Riverside Line)
  - 12 trains on weekdays, no service on weekends
- Foothill Transit (195, 197, 286, 291, 292, 480, 482, 855, Silver Streak)
  - Daily service
- Omnitrans (61)
  - Daily service
- Cal Poly Pomona Shuttle
  - Weekday service only

Ownership

Owned and operated by City of Pomona

References

- City of Pomona website: www.ci.pomona.ca.us

Figure **5.4**

Solana Beach Transit Station

105 North Cedros Avenue - Solana Beach, CA

S.C. TRANSIT CENTERS

Overview

The Solana Beach Transit Station is located in the northern portion of San Diego County and is a multi-modal transportation facility that provides multiple transit services, including commuter rail and bus, bicycle amenities, and access to the Coastal Rail Trail. The Coastal Rail Trail is a 33-mile trail designed for pedestrians and cyclists that travels adjacent to the railway tracks.

Surrounding Land Uses and Amenities

The City of Solana Beach is examining the potential to develop transit-oriented and mixed use development at the station. Existing land uses surrounding the station consist predominately of commercial and residential. The Coastal Rail Trail is located west of the station, and a pedestrian bridge connects the trail to the station.

Amenities at the station include an information kiosk, enclosed passenger waiting areas, bicycle racks, restrooms, telephones, and an ATM machine. Covered benches, trash receptacles, and lighting are located on both platforms.

Size

5.9 acres

Number of Parking Stalls

- 321 surface parking lot
- 66 on-street parking spaces
- 27 designated for transit use in adjacent shopping center surface parking lot

Transit Services

- Amtrak (Pacific Surfliner)
  - 24 trains daily
- COASTER
  - 20 trains on weekdays, 10 trains on Saturdays, occasional service on Sundays
- Breeze (101, 308, 401)
  - Daily service

Ownership

Owned and operated by City of Solana Beach

References

- Solana Beach Transit Station Parking Study. IBI Group, 2010
- Mixed Use Solana Beach Train Station Draft EIR. Mooney, Jones & Stokes, 2006

Figure **5.5**

Oxnard Transportation Center

201 East Fourth Street - Oxnard, CA

S.C. TRANSIT CENTERS

Overview

The Oxnard Transportation Center is a regional multi-modal transportation facility that provides Amtrak and Metrolink train services, Greyhound bus service, VISTA, Gold Coast Transit, Harbor Beaches Dial-A-Ride bus services, and Amadeus limousine, shuttle, and taxi service. Located in Downtown Oxnard, the station is within walking distance of the numerous retail stores, restaurants, and entertainment.

Surrounding Land Uses and Amenities

Amenities provided at the station include indoor passenger waiting areas, restrooms, telephones, a snack shop, and security service. Covered benches, trash receptacles, and lighting are provided on the platforms.

Size

5 acres

Number of Parking Stalls

- 75 parking spaces

Transit Services

- Amadeus
  - Limousine, shuttle, and taxi service by request
- Amtrak (Pacific Surfliner, Coast Starlight)
  - Pacific Surfliner – 24 trains daily
  - Coast Starlight – 2 trains daily
- Gold Coast Transit (2, 3, 4 A/B, 5, 6, 8, 19, 38X)
  - Daily service
- Greyhound
  - Daily service
- Metrolink (Ventura County Line)
  - 8 trains on weekdays, no service on weekends
- VISTA
  - 3 routes providing daily service

Ownership

Owned and operated by City of Oxnard

References

- City of Oxnard website: www.ci.oxnard.ca.us
- Oxnard Transportation Center website: www.oxnardtransportationcenter.com

6.0 SITE ALTERNATIVES

The analysis of the project site was focused on the identification of alternatives for an interim use condition, centered on opportunities for renewable energy generation and parking facilities, and how the recommended interim use could potentially transition to a build-out use that incorporates the proposed multimodal transit center and other mixed-use development opportunities that would be compatible with the transit use and the Section 19 Specific Plan.

The vision for this study is the identification of a viable interim use for the site that involves the implementation of a renewable energy generation facility. There are several potential benefits associated with implementing this type of facility. These benefits include:

- The potential to provide a reliable, environmentally friendly, and cost-effective power source to a dedicated user or as a renewable energy source for customers located throughout the city.
- The opportunity for CVAG to lease the property for an interim time period (15-20 years) and receive revenue that could be used in the construction of the planned transit center.
- The creation of a renewable energy demonstration project with a model that could be replicated elsewhere in the City of Rancho Mirage and Southern California as public agencies examine interim uses for publicly-owned properties.

Discussed within this section of the report are an interim use and three build-out configurations for the site. Each alternative is described and summarized in terms of its anticipated construction cost, energy generation yield, parking capacity, and building floor area.

6.1 Interim Use Concept

Given the long-term horizon for construction of the proposed CVAG transit center (greater than 20 years), there is an opportunity to implement an interim use on the project site that could occupy the site and operate for a 15 to 20 year period.

The concept for interim use focused on the identification of the maximum number of solar panels that could placed on the 11.49 acre site. Additionally, it is assumed that the development horizon for the Section 19 Specific Plan, particularly the areas located adjacent to the project site, would also be beyond a 15 to 20 year horizon. This condition creates an opportunity for the placement of solar panels on the proposed retention basin, located immediately east of the project site, and a potential increase in the energy generation capacity of an interim use.

A proposed layout for a solar energy generation facility on the transit center and retention basin sites is shown in Figure 6.1. Under this concept, the solar facility would contain 11,600 photovoltaic modules capable of generating nearly 5.4 million kilowatt hours (KWH) of electricity annually.

Under the proposed interim use concept, CVAG would lease its property to a developer who in turn would construct the solar facility. The developer would then look to enter into a power purchase agreement (PPA) with a dedicated user of the electricity generated by the solar facility. In this case, the likely potential customers for the power generated on the project site could be the Agua Caliente Resort and Casino or the City of Rancho Mirage. In the latter case the facility would serve customers in the city.

Connection to the Imperial Irrigation District (IID) electric grid was also analyzed for this interim condition. This approach has specific challenges given the distance of the project site to the nearest substation (greater than one mile away) and the connection costs that would be incurred by an energy developer ($1 million) if this option were to be pursued.

Consistent with the interim condition for this option, construction of the facility and installation of the solar panels would provide flexibility for removal and/relocation. In this case, the solar panels would likely be installed in a ballast base that is placed on top of existing ground. This approach would allow for simple removal or relocation of the panels. This approach is warranted also given that the project site includes two different ultimate uses located adjacent to each other (transit center and retention basin). If one of the two future projects were to advance towards implementation ahead of the other, a portion of the solar facility could remain in place on the remaining undeveloped property.

This interim land use alternative optimizes the solar energy generation of the combined CVAG parcel area plus the retention basin area, thus achieving a 100.0% baseline efficiency rating for this function. Its yield for this use ranks it first among the four alternate plans considered. However, it reflects a 0.0% efficiency rating for phased and ultimate Mixed Use Development of the site since the entire land area is covered with solar panels. This results in its being ranked last among the four alternatives considered for the Proposed Land Development Program.

Figure
6.1

Interim Use Solar Facility Layout

Rancho Mirage, CA

6.2 Build-out Alternative 1

The three build-out alternative discussed in this report would replace the interim use concept discussed previously after a 15-20 year time period. These alternatives include the proposed transit center.

This build-out alternative strives to maintain as much solar energy generation capacity as deemed possible within a phased and ultimate Mixed Use Development program for the combined parcels. Thus, for solar generation potential, this alternative has a favorable efficiency rating of 36.2% when compared to the optimized Interim Use Concept and ranks second among the four alternatives in this regard. Each build-out alternative also accommodates the location of three (3) NPS Class II Wind Turbines as an added energy source. From a Mixed Use Development perspective, this alternative ranks last among the three buildout concepts considered, with development efficiency rating of a low 39.7% when compared to the highest yielding Alternative 2. In this alternative, the Floor Area Ratio (FAR) for the CVAG parcel is a very low 0.10, which is considered to be below acceptable yields for a commercially zoned property at this location.

The primary elements of this alternative include the following:

- 45,000 square feet of building space for commercial uses
- 7,500 square foot transit station building
- seven bus bays for local/regional bus lines
- 247 surface parking spaces

Figure 6.2 illustrates the potential layout for solar panels on the site. The site plan includes large areas not allocated to building or parking use where solar PV panels could be maximized. As proposed, this plan could accommedate 5,110 PV panels mounted in a combination of ground, parking shade structure and roof top locations. Figure 6.3 illustrates the proposed site plan. Perspective views of the site are shown in Figures 6.4, 6.5, and 6.6

The focus of this alternative on maximizing space for PV Panels does impact the layout for parking facilities. Parking supply is focused for the mixed-use commercial buildings. Sharing parking between these uses and the transit center while feasible, is not as convenient as would be desired. The overall site parking ratio is 4.65 spaces per 1,000 square feet of building floor area.

Figure **6.2**

Alternative 1 Solar Facility Layout

Rancho Mirage, CA

AREA	MODULES	WATTS DC STC	WATTS CEC AC	KWH ANNUAL	SYSTEM TYPE
1A	140	33,600	28,344	54,546	20º Solardock Roof Mount
1B	364	87,360	73,695	141,819	20º Solardock Roof Mount
1C	312	74,880	63,168	121,559	20º Solardock Roof Mount
Totals for Area 1	**816**	**195,840**	**165,207**	**317,924**	
2	**1,358**	**325,920**	**274,941**	**529,095**	20º Ballasted Ground Mount
3A	1,232	295,680	249,431	480,004	20º Pile Driven Ground Rack
3B	336	80,640	68,383	128,101	20º Pile Driven Ground Rack
Totals for Area 3	**1,568**	**376,320**	**317,814**	**611,616**	
4A	104	24,960	20,946	35,418	0º Shade Structure Mount
4B	252	60,480	51,287	94,117	10º Shade Structure Mount
4C	56	13,440	11,278	19,071	0º Shade Structure Mount
4D	322	77,280	65,533	120,260	10º Shade Structure Mount
4E	56	13,440	11,278	19,071	0º Shade Structure Mount
4F	208	49,920	42,112	77,270	10º Shade Structure Mount
4G	104	24,960	20,946	35,418	0º Shade Structure Mount
4H	266	63,840	54,136	99,346	10º Shade Structure Mount
Totals for Area 4	**1,368**	**328,320**	**277,516**	**499,971**	
Grand Totals	**5,110**	**1,226,400**	**1,035,478**	**1,955,095**	Modules are Moser Baer 240W

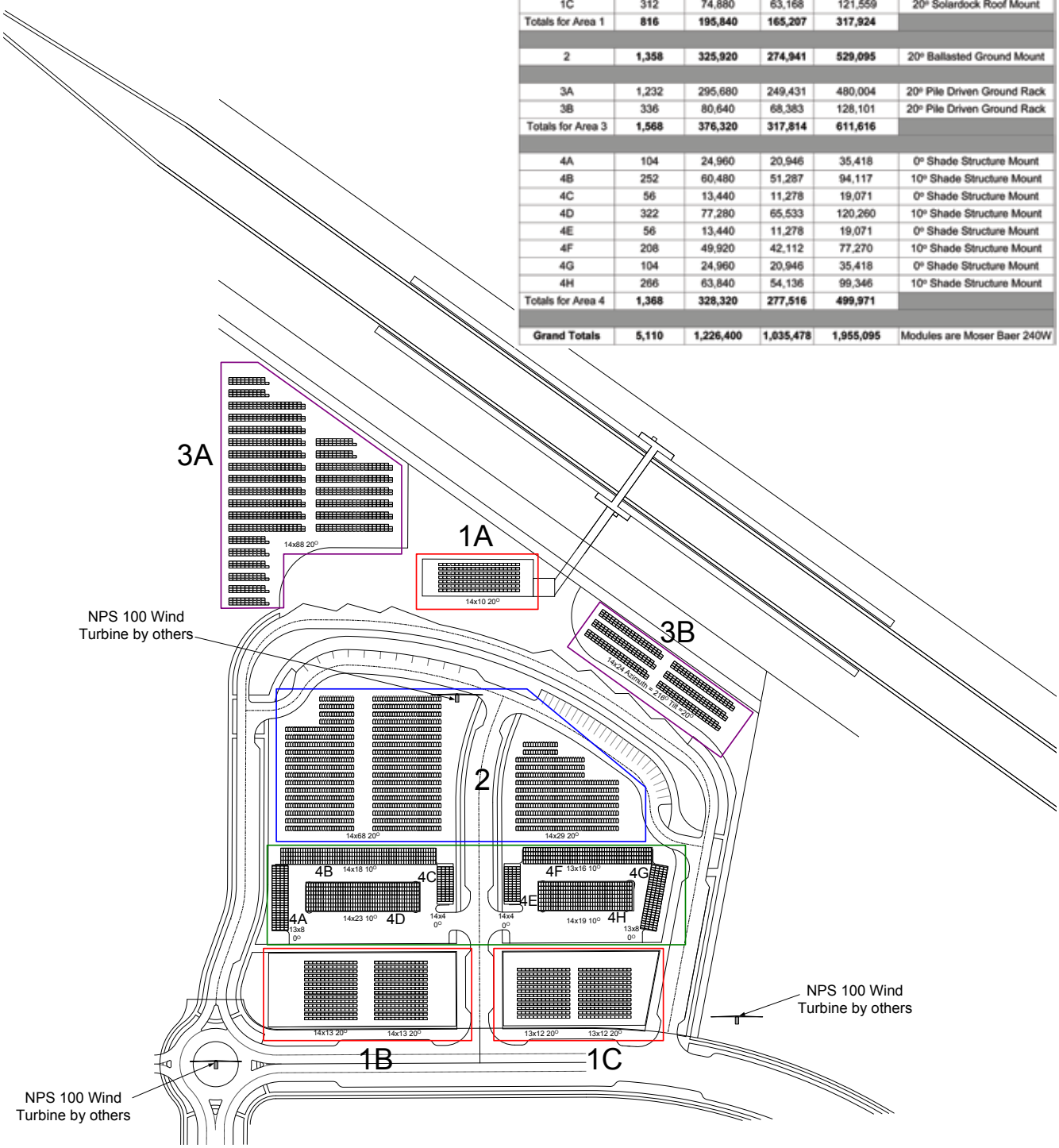


Figure **6.3**

Alternative 1 - Site Plan

Rancho Mirage, CA

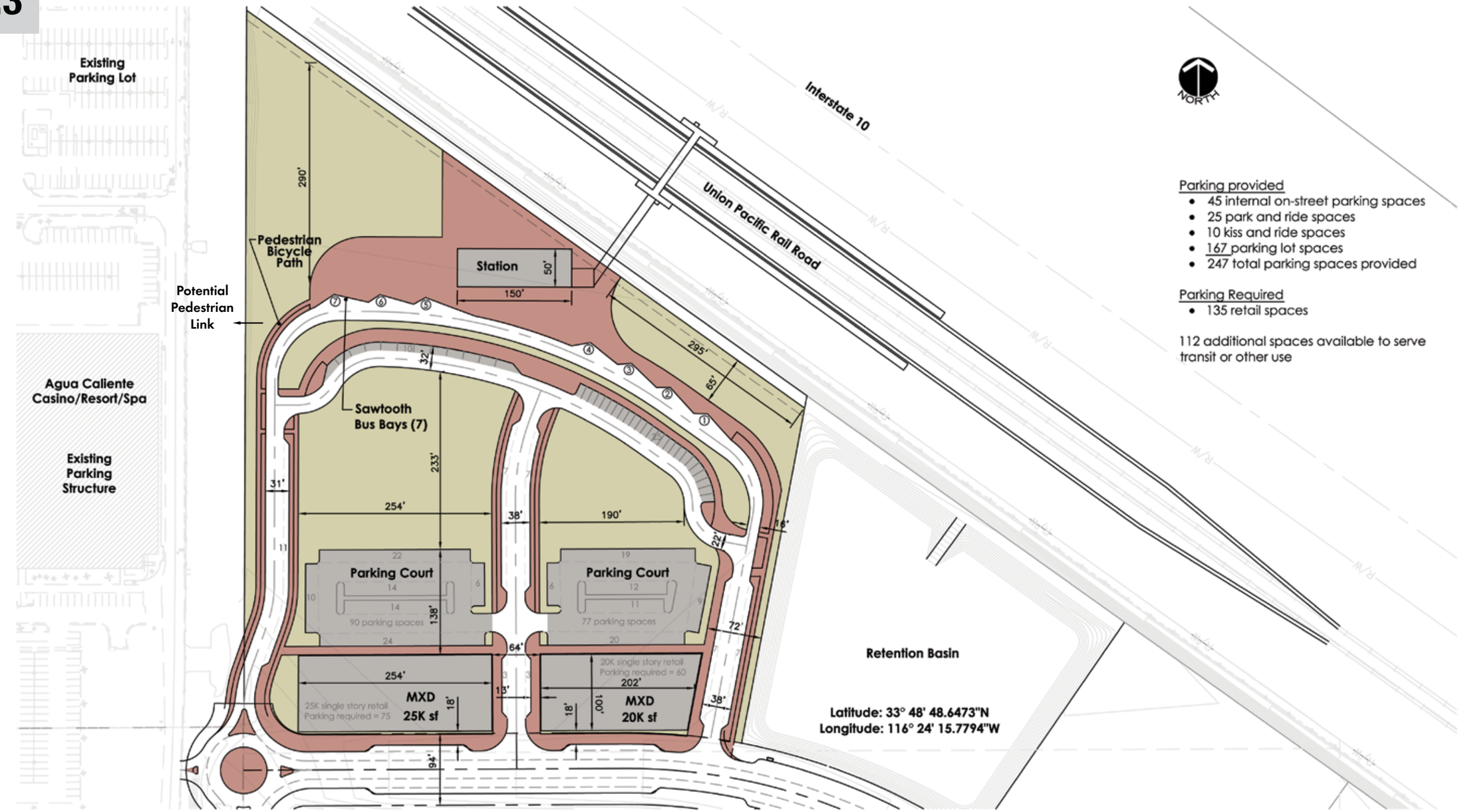


Figure
6.4

Alternate 1 - Illustrative Plan View A

Rancho Mirage, CA

Figure
6.5

Alternate 1 - Illustrative Plan View B

Rancho Mirage, CA

Figure
6.6

Alternate 1 - Illustrative Plan View C

Rancho Mirage, CA

6.3 Build-out Alternative 2

This alternative looks to optimize the Land Development Program while providing a somewhat reduced Solar Energy Generation Program. As a result, the Efficiency Rating for Solar Generation potential drops to 26.3% when compared to the optimized Interim Use Concept, causing this concept to be ranked last (fourth) among the alternative concepts considered.

From a Mixed Use Development yield perspective, this alternative achieves an overall Floor Area Ratio (FAR) of 0.26 for the CVAG parcel. This is a very good yield for a commercially zoned property at this location. Thus, this alternative ranks first among the four alternatives considered from a build-out yield point of view, and is given a comparative development efficiency of 100.0% when contrasted with the other two buildout concepts.

This alternative features two very large vehicular parking fields located in the center of the CVAG parcel. These parking areas provide an efficient layout that would optimize the provision of parking and the placement of solar PV panel modules. However it should be noted that this parking solution could create a “heat island” effect in the center of the site, and would benefit from the addition of solar collector/ shade canopy and micro-mist air cooling systems for the comfort of pedestrians accessing the transit station building.

There are two potential parking concepts for this alternative. This first would maintain a surface parking concept with a parking ratio of 3.1 spaces/ 1,000 square feet of building floor area, which is lower than the Section 19 Specific Plan parking minimums. However, this ratio could be feasible given the mixed-use nature of the development and proximity to the transit center. Incorporating structured parking would significantly increase development costs, but would provide a more robust parking ratio of 5.6 spaces/ 1,000 square feet, that would meet required minimums and provide more parking for the transit center.

Elements of this alternative include the following:

- 128,000 square feet of commercial use in two buildings (assumes retail and office use)
- 7,500 square foot transit center
- 412 parking spaces (surface), 742 parking spaces (structured)
- 3,730 solar PV panels
- nine bus bays for local/regional buses

Figure 6.7 illustrates the proposed layout of solar PV panels in this alternative. The overall site plan is shown in Figure 6.8. Figure 6.9, 6.10 and 6.11 provide illustrative views of the alternative development concept.

Figure **6.7**

Alternative 2 Solar Facility Layout

Rancho Mirage, CA

AREA	MODULES	WATTS DC STC	WATTS CEC AC	KWH ANNUAL	SYSTEM TYPE
1A	98	23,520	19,529	37,568	20º Solardock Roof Mount
1B	280	67,200	56,986	109,676	20º Solardock Roof Mount
1C	224	53,760	45,588	87,741	20º Solardock Roof Mount
Totals for Area 1	**602**	**144,480**	**122,103**	**234,985**	
2A	448	107,520	91,177	175,482	20º Pile Driven Ground Rack
2B	406	97,440	82,629	159,031	20º Ballasted Ground Rack
Totals for Area 2	**854**	**204,960**	**173,806**	**334,513**	
3A	196	47,040	39,682	72,812	10º Shade Structure Mount
3B	266	63,840	54,136	99,346	10º Shade Structure Mount
3C	266	63,840	54,136	99,346	10º Shade Structure Mount
3D	266	63,840	54,136	99,346	10º Shade Structure Mount
3E	238	57,120	48,438	88,888	10º Shade Structure Mount
3F	378	90,720	76,931	141,175	10º Shade Structure Mount
3G	350	84,000	71,232	130,718	10º Shade Structure Mount
3H	322	77,280	65,533	120,260	10º Shade Structure Mount
Totals for Area 3	**2,282**	**547,680**	**464,224**	**851,891**	
Grand Totals	**3,738**	**897,120**	**760,133**	**1,421,389**	Modules are Moser Baer 240W

Figure **6.8**

Alternative 2 - Site Plan

Rancho Mirage, CA

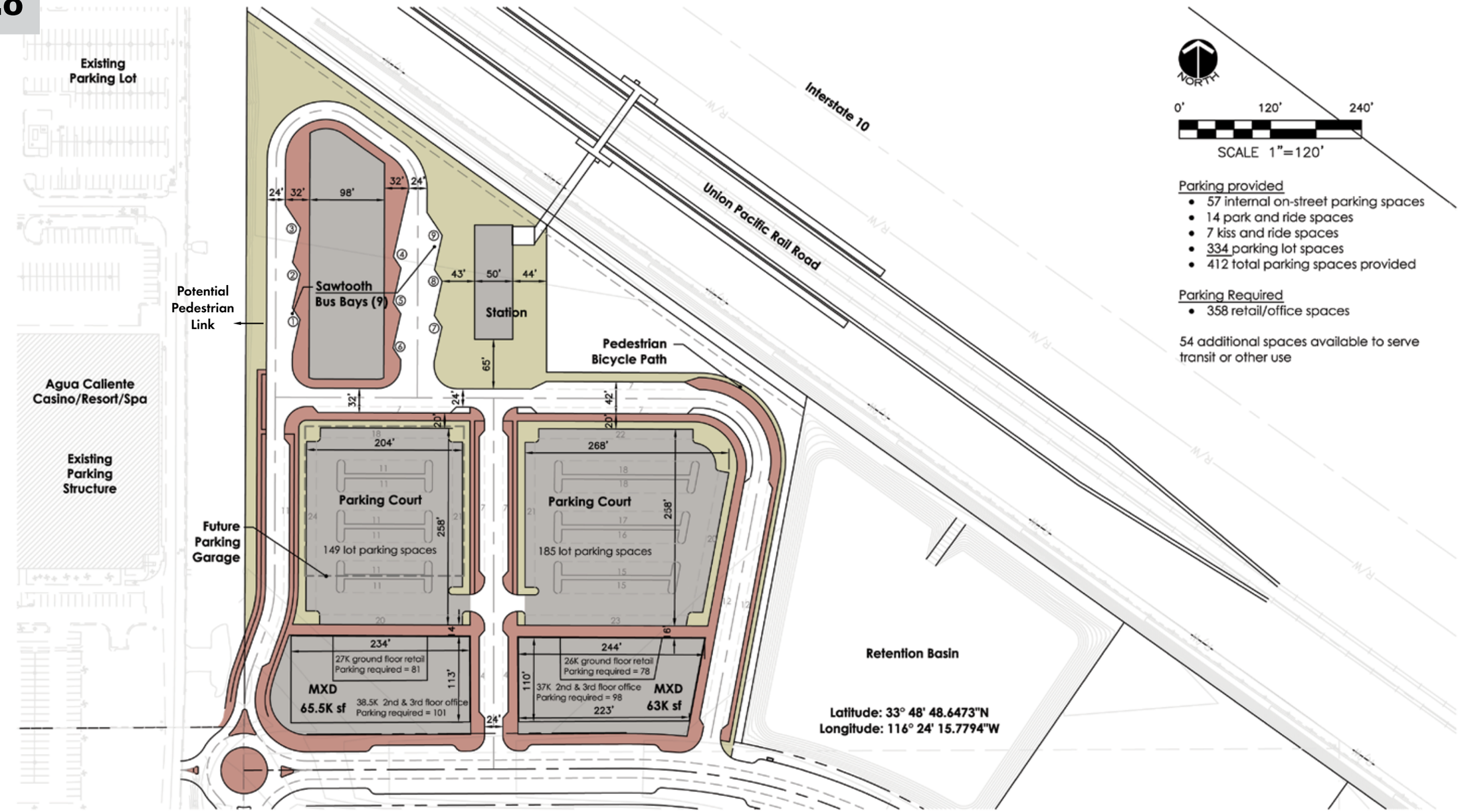


Figure
6.9

Alternate 2 - Illustrative Plan View A

Rancho Mirage, CA

Figure
6.10

Alternate 2 - Illustrative Plan View B

Rancho Mirage, CA

Figure
6.11

Alternate 2 - Illustrative Plan View C

Rancho Mirage, CA

6.4 Build-out Alternative 3

This alternative further advances the spirit and intent of the adopted City of Rancho Mirage Section 19 Specific Plan, featuring a gateway "business campus" theme with landscaped open space corridors, a series of smaller parking courts, and a future option for a covered parking structure which could be shared between the transit center, development on the site, and the adjacent Agua Caliente Resort and Casino. In this alternative, careful thought has been directed toward the pedestrian experience accessing the transit station building from a series of small trellis covered parking courts which employ solar panels as shade structures. Walking distances and pathways have been optimized to the extent possible.

The application of these site planning principles results in a somewhat reduced solar energy generation yield which ranks third among the four concepts considered with an efficiency rating of 29.2% when compared to the optimized Interim Use Concept.

Elements of this concept include the following:

- 78,000 square feet of commercial space in two buildings
- 7,500 square foot transit center
- up to 696 parking spaces with structured parking
- 6,743 solar PV panels
- six bus bays for local/regional buses

From a land development program yield perspective, this alternative ranks second among the buildout concepts considered, with an efficiency rating of 64.4% when compared to Alternative 2. The resultant Floor Area Ratio of 0.17 for this alternative on the CVAG parcel is considered good for a commercially zoned property at this location. The parking ratio for this alternative is 5.3 spaces/ 1,000 square feet for surface parking only. If the parking structure is added as shown on the concept drawings, the overall site parking ratio increases to 8.2 spaces/ 1,000 square feet. This level of parking is more than sufficient for the proposed development on the site and the transit center, allowing shared use options with the adjacent Agua Caliente Resort and Casino.

Figure 6.12 illustrates the Solar PV panel layout. The proposed site plan is shown in Figure 6.13 perspective views of this site plan are shown in Figures 6.14, 6.15 and 6.16.

Figure
6.12

Alternative 3 Solar Facility Layout

Rancho Mirage, CA

AREA	MODULES	WATTS DC STC	WATTS CEC AC	KWH ANNUAL	SYSTEM TYPE
1A	98	23,520	19,529	36,566	20º Solardock Roof Mount
1B	280	67,200	56,986	109,676	20º Solardock Roof Mount
1C	280	67,200	56,986	109,676	20º Solardock Roof Mount
Totals for Area 1	**658**	**157,920**	**133,501**	**255,918**	
2	**196**	**47,040**	**39,682**	**74,327**	20º Ballasted Ground Mount
3A	308	73,920	62,684	113,254	10º Shade Structure Mount
3B	252	60,480	51,287	92,662	10º Shade Structure Mount
3C	196	47,040	39,682	71,686	10º Shade Structure Mount
3D	602	144,480	122,519	224,835	10º Shade Structure Mount
3E	196	47,040	39,682	72,812	10º Shade Structure Mount
3F	130	31,200	25,906	47,516	10º Shade Structure Mount
3G	56	13,440	11,160	20,152	10º Shade Structure Mount
3H	65	15,600	12,953	23,391	10º Shade Structure Mount
Totals for Area 3	**1,805**	**433,200**	**317,814**	**611,616**	
4A	516	123,840	104,469	176,676	0º Shade Structure Mount
4B	798	191,520	161,563	273,231	0º Shade Structure Mount
4C	196	47,040	39,682	67,109	0º Shade Structure Mount
4D	112	26,880	22,557	38,143	0º Shade Structure Mount
4E	65	15,600	12,953	21,898	0º Shade Structure Mount
4F	65	15,600	12,953	21,898	0º Shade Structure Mount
4G	52	12,480	10,363	17,518	0º Shade Structure Mount
4H	52	12,480	10,363	17,518	0º Shade Structure Mount
Totals for Area 4	**1,856**	**445,440**	**374,903**	**633,991**	
Grand Totals	**4,515**	**1,083,600**	**865,900**	**1,575,852**	Modules are Moser Baer 240W

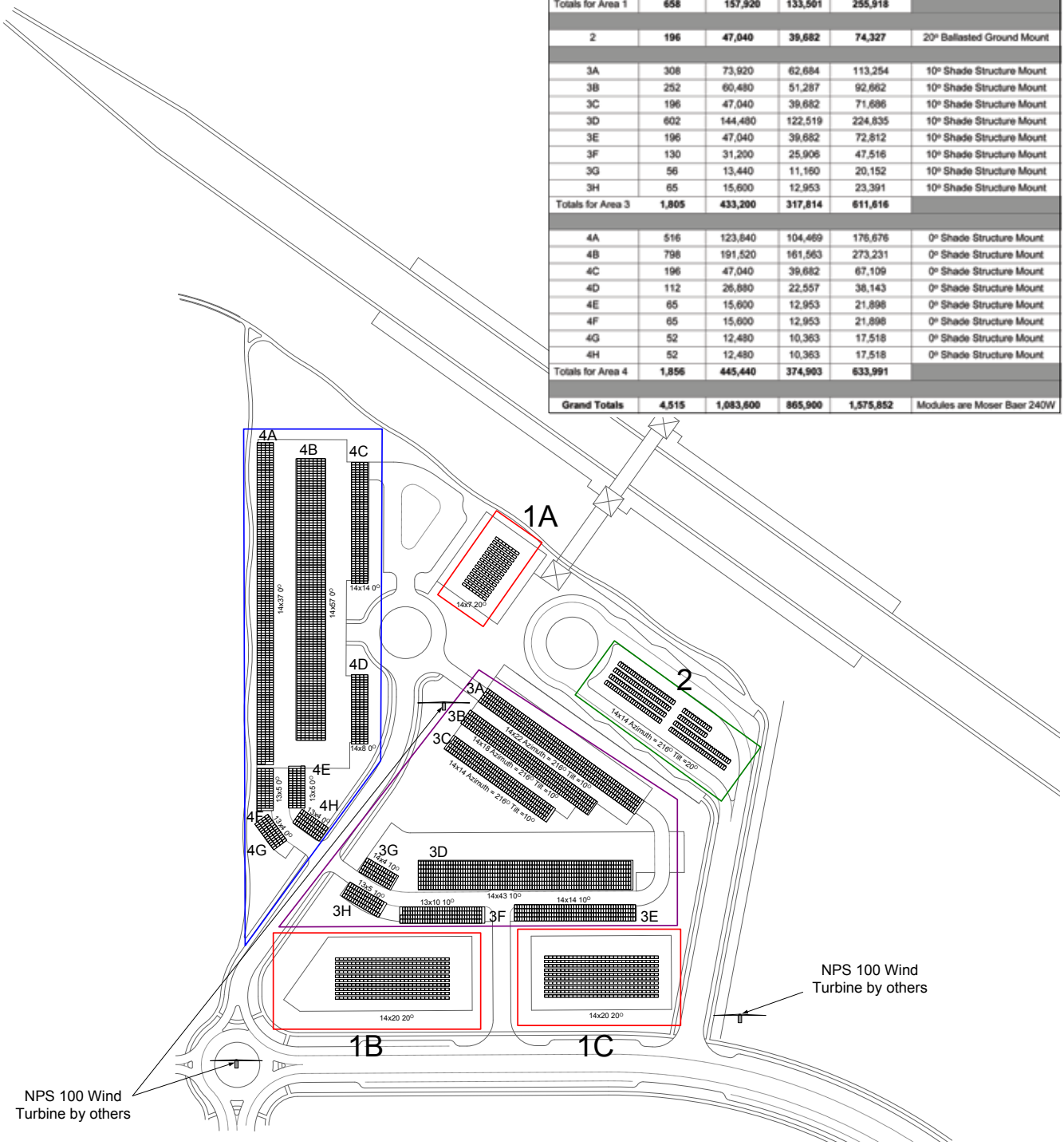


Figure
6.13

Alternative 3 - Site Plan

Rancho Mirage, CA

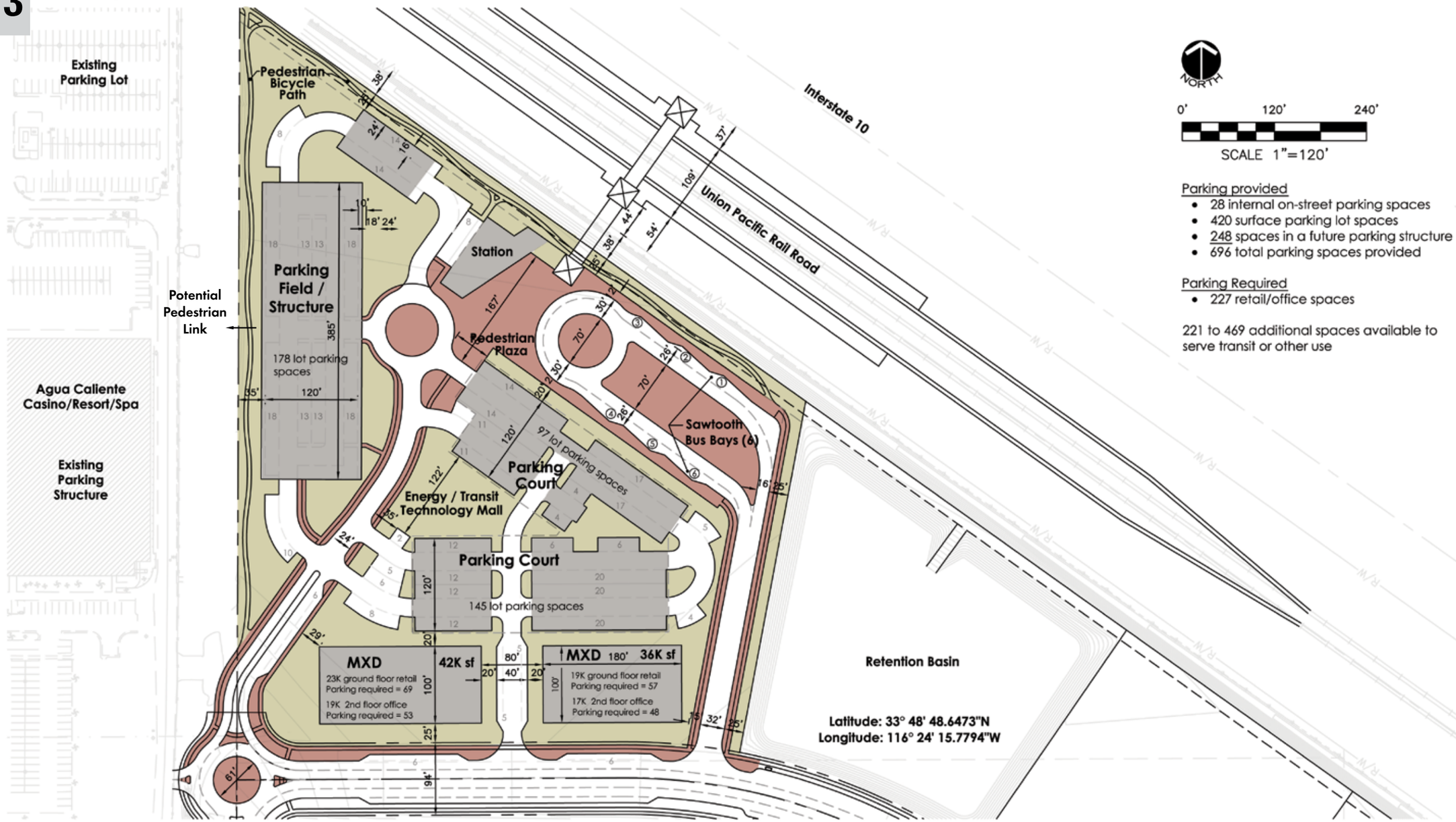


Figure
6.14

Alternate 3 - Illustrative Plan View A

Rancho Mirage, CA

Figure
6.15

Alternate 3 - Illustrative Plan View B

Rancho Mirage, CA

Figure
6.16

Alternate 3 - Illustrative Plan View C

Rancho Mirage, CA

6.5 Summary of Alternatives

As discussed in the text provided on each of the alternatives, the four concepts providing varying levels of land development and renewable energy generation potential. In all cases, the concepts would be consistent with the Section 19 Specific Plan, but provide the City of Rancho Mirage and CVAG with different approaches to providing public transit facilities, parking facilities, and allocating space for adjacent mixed-use development.

Table 6.1 provides a comparison of the Interim Use Concept and the three build-out alternatives in terms of their development and energy generation yields. One item to note is that the Interim Use Concept has been described and analyzed with 280W PV panels, while the build-out alternatives assume 240W PV panels. The 280W panels do provide slightly higher yield for a slightly higher cost than 240W panels. It is likely that any developer of a renewable energy project would chose either rating of panels based on the observed rates for production and cost present at the time of construction. Presentation of two different items here allows for illustration in the range of potential products that could be utilized.

Table 6.1 – Comparison of Interim Use Concept and Mixed-Use Build-Out Alternatives

	Interim Use Concept	Alternative 1	Alternative 2	Alternative 3
Proposed Solar Energy Generation Program				
Number of PV Modules	11,600 (Moser Baer 280W)	5,110 (Moser Baer 240W)	3,738 (Moser Baer 240W)	4,515 (Moser Baer 240W)
Watts DC STC	3,248,000	1,226,400	897,120	1,083,600
Watts CEC AC	2,663,400	1,035,478	760,133	865,900
KWH Annual	5,395,599	1,955,095	1,421,389	1,575,852
Energy Yield Rank Order	First	Second	Fourth	Third
Energy Generation Efficiency Rating	100.0%	36.2%	26.3%	29.2%
Proposed Land Development Program				
Transit Station Building (sqft)	n/a	7,500	7,500	7,500
Mixed Use Buildings (sqft)	n/a	45,000	128,500	78,000
Total Building Area (sqft)	n/a	52,500	136,000	85,000
Floor Area Ratio	n/a	0.10	0.27	0.17
Build-Out Parking	n/a	247 spaces	412 to 742 spaces	696 spaces
Parking Ratio	n/a	4.65/1000 sqft	3.02/1000 sqft (surface only) 5.46/1000 sqft (structured)	8.2/1000 sqft
Development Yield Rank	n/a	Third	First	Second
Development Efficiency Rating	n/a	39.7%	100%	64.4%

Notes:
PV - Photovoltaic
DC – Direct Current
AC – Alternating Current
KWH – Kilowatt Hours
STC - Factory Standard Test Conditions
CEC – California Energy Commission
sqft – Square Feet

The next section will discuss the financial pro-forma analysis that was completed for each alternative, as well as for the Interim Use Concept. This analysis is an integral part in the development of recommendations for this study effort.

7.0 FINANCIAL ANALYSIS

The financial analysis examines the economic viability of the project alternatives described in Section 6.0. As outlined in Section 6.0, there one interim use concept proposed for the site and three build-out alternatives intended for longer-term development of the site.

The financial analysis of each alternative includes a pro-forma that considers the costs and potential revenues in the interim and build-out conditions. Following the summary of the pro-forma analysis, the report discusses the potential for the interim use concept to provide carbon offsets or serve as environmental mitigation for greenhouse gas (GHG) impacts associated with potential adjacent development.

The carbon offset concept is an emerging opportunity associated with the cap and trade program envisioned in Assembly Bill 32 (AB 32) that is scheduled to become active on January 1, 2013. Environmental mitigation opportunities are also explored as this concept would help to find a funding source for construction of the renewable energy generation facility and potentially advance its implementation.

7.1 Pro-Forma

The following is a description of the key assumptions; capital cost items, revenue sources and overall approach to the assessment of financial feasibility of the project alternatives. The details and assumptions underlying each land use associated with the development, the estimates of capital costs and expected revenues, and the projected returns to the project, are presented below.

The analysis is designed to test the financial feasibility of each of the potential designs, associated servicing and infrastructure in broad terms, and operations of the alternative. The financial viability of the project is central to the success of a recommended concept.

The objectives of the costing and financial analysis, outside of assessing the feasibility of each alternative, are to understand the economic potential of an interim use on the project site and to compare three alternative development scenarios based on variations to the development schedule of construction and anticipated returns to the project.

For the three buildout alternatives it is understood that, as a strategic assessment, the results would be used as an input to the identification of a single concept from among the various scenarios. Therefore, the key assumptions regarding each of these models - timing of construction as well as unit costs and revenues, escalation, percent of equity versus debt, and interest rates - are identical for the three scenarios. In addition, the analysis excludes any consideration of base land value (which is assumed to be identical under all three options).

The following outlines the key elements of the analysis. Detailed tables are provided in the Appendix.

Development Alternatives

At the core of each development option is the energy park, which varys in size and energy production. The Interim Use concept assumes that the energy park would be the only element built over the initial 20 years of the project where development begins in 2013 with infrastructure costs being assumed in 2012.

The three buildout use options incorporate the mixed-use development uses that are outlined in the table below. The buildout use follows the same assumption that the development of the energy park would occur in 2013, but assumes that the mixed-use developments would occur until 2034. As with the construction of the energy park, the infrastructure costs associated with the mixed-use developments will be included in the year prior to construction of the development.

Table 7.1 – Summary of Development Concepts by Alternatives

Alternative 1 - 1,101,360W DC / 1,035kW AC with Annual Production of Approx 1,933 mWh		
Retail Development	sq.ft	45,000
Transit Center	sq.ft	7,500
Surface Parking Spaces	Spaces	247
Alternative -2 - 897,120 W DC / 760kW AC with Annual Production of Approx 1,421 mWh		
Retail Development	sq.ft	53,000
Office Development	sq.ft	75,500
Transit Center	sq.ft	7,500
Surface Parking Spaces (Phase 1)	Spaces	412
Structured Parking Spaces (Phase 2)	Spaces	330
Alternative 3 - 1,092,960W DC / 874kW AC with Annual Production of Approx 1,573 mWH		
Retail Development	sq.ft	15,000
Office Development	sq.ft	63,000
Transit Center	sq.ft	7,500
Surface Parking Spaces (Phase 1)	Spaces	448
Structured Parking Spaces (Phase 2)	Spaces	380

Capital Cost Assumptions

Retail Use	sq.ft	$101
Office Use	sq.ft	$171
Transit Center	sq.ft	$133
Surface Parking	Spaces	$7,000
Structured Parking	Spaces	$28,000

The table below outlines the capital cost assumptions for the mixed-use developments. The source for these costs is Reed Construction Data who provides typical building construction cost values for regions across the United States. Palm Springs was used as the base municipality as it is the closest in proximity to the subject site.

Other Assumptions

- The equity to debt ratio utilized in the analysis is 20:80. This implies that of the total amount anticipated to be funded by a corporate loan, 20% of that total would be paid for by equity while the remaining 80% would be funded by debt.
- The financing rates assumed differ depending on whether the loan is short term or long term. The interim financing rate assumed is 5.5% while the long term financing rate assumed is 6.5%. For the infrastructure costs associated with the construction of the transit center, the 20-year municipal bond rate of 3.36% was used.
- The project timeline is anticipated to be 20 years beginning in 2012 and culminating in 2033 for the Interim Use concept. For the build-out use scenario 20 year and 30 year timelines were used, with the final years being 2054 and 2064.
- An annual escalation rate of 2.5% was used to represent the continuing change in costs and revenues over time. Initial costs were stated in current dollars and over time have been escalated to the time they will be realized.
- A discount rate of 7% was utilized in order to determine the net present value.

Table 7.2 – Summary of Results by Alternative (NPV)

Alternative	Net Income (20 years)	Net Income (30 years)
Interim Use Concept	($ 1,623,814)	N/A
Alternative 1	($ 3,955,448)	($ 1,439,441)
Alternative 2 (without structured parking)	($ 9,633,273)	($ 4,965,726)
Alternative 2 (with structured parking)	($ 17,991,573)	($ 15,802,346)
Alternative 3	($ 12,503,376)	($ 11,505,127)

7.1.1 Results

The results are presented in terms of net present value (NPV) associated with each of the four development options under both the Interim Use and buildout use time frames. As previously stated, the Interim Use only includes the construction and operation of the energy park while the buildout use incorporates the mixed-use development beginning in 2034.

The net present value calculation was completed at the end of the analysis on the net income after debt servicing was established. While the operations of each of the three alternatives operate at a profit, once the debt servicing payments are included, those operating gains turn to losses.

The results indicate that the implementation of any of the three alternatives will be incredibly costly. While the operations of the development function at a profit, the significant capital costs that will be a realized during the construction period are not offset but the positive operating returns. Several options exist that could make any of the three buildout alternatives viable. The primary option would be to pursue grant funding for construction of the transit center and a portion of the parking facilities. These are significant elements in the construction cost (likely greater than $2 million).

7.1.2 Risk Factors

- Infrastructure costs may prove to be higher than stated based on the assumption that until such time as a detailed plan is in place, it is not possible to estimate precisely the requirements of approval authorities in regard to both transportation and utilities services.
- It should be noted that the analysis is highly simplified - assuming that the 20% equity on capital costs is available at all times throughout the project. In this scenario, financing costs would be necessitated and by so doing, an important cost contingency (the requirement for interim construction financing) is taken into account.
- Without the introduction of alternative sources of funding for operating uses, the viability of a project of this magnitude will be unrealistic considering the size of the municipality.
- The capital costs of the development have been estimated but may be subject to cost increases dependent on changes to design and timing of construction.
- Commercial lease rates in the Coachella Valley are very low as a result of the current economic conditions. These lease rates have a significant impact on the viability of a project on the site.

The analysis conducted is set against recent changes in the global real estate market as well as economy. Data for this analysis are based on recent historic measures. As such, the assumptions do not reflect the economic concerns emanating from Europe which have occurred in recent months. Based on our on-going market intelligence, it is possible that prices for real estate product may continue to drop, as well as lease rates and rental rates.

The analysis is based on the fundamental strength of the US economy in future years and hence that demand for property development will continue, particularly if there is a price correction in the market place as a result of the global slowdown. However, economic downturn will likely affect the long-term build-out of the development more significantly.

7.2 Carbon Offsets

While the Interim Use concept also did not generate a profit within the 20 year analysis horizon, other outside factors could provide financial benefits for the project and increase its financial viability. AB 32, the Global Warming Solutions Act of 2006, creates a multi-year program intended to reduce GHG emissions within California to 1990 levels by the year 2020. The AB 32 Scoping Plan includes a comprehensive set of GHG emission reduction strategies in the form of regulatory approaches, voluntary measures, and programs. These strategies include the development of renewable energy, more efficient transportation, the use of combined heat and power technology, energy efficiency investments identified in audits of large industrial facilities, and the use of motor vehicle fuels meeting a low carbon fuel standard.

Subsequently, by means of Executive Order S-21-09, former Governor Schwarzenegger directed California's Air Resources Board (ARB) to adopt a resolution by July 31, 2010 requiring the State's load-serving entities to satisfy a 33% renewable energy target by the 2020. In April 2011, SB-X1-2 was signed by Governor Brown, which increased the role of the Energy Commission, with respect to publicly-owned utilities in ways that ensure the form and function of the Renewable Portfolio Standard (RPS), California's blueprint for the nation's preeminent energy standards.

The potential opportunities related to cap and trade, RPS requirements, and environmental mitigation for the proposed interim renewable energy generation project are discussed below.

Cap and Trade

Integral to the implementation of AB 32 is a cap and trade program, an environmental policy tool that caps emissions over time. The features of a cap and trade program are as follows: Emitting sources such as cargo ships, trucks, and machinery emit different levels of CO2, for which they receive authorization, in the form of emissions allowances, with the total amount of allowances limited by a cap. The cap set is based on an established industry baseline CO2 emissions levels, such as stabilized 2007 emissions levels.

Each authorization to emit a capped amount of CO2 represents an "allowance," during a specified year, up to one ton of CO2 equivalent. The allowance is a mechanism by which to reduce emissions to a predictable, desired level, in the short and medium-term. The long-term objective is emissions elimination, facilitated by technological alternatives.

As administered by the Environmental Protection Agency (EPA), the mandatory reporting of GHG is on the basis of an emissions unit that one carbon offset represents the reduction of one metric ton per year of carbon dioxide, or its equivalent in other greenhouse gas emissions. Reference to this unit by the California ARB equates to 2204.6 pounds of GHG emissions. Beginning in 2013, emissions from California's largest industrial utilities will be capped. Under cap and trade, certain companies will be granted allowances for each metric ton of GHG they emit. The historical pricing data, sourced from the Chicago Climate Exchange (CCX) is referenced on the basis of price per metric ton.

At the end of the compliance period, emission sources must possess sufficient allowances in the form of "permits," to cover their emissions during the period. In the event emissions levels are well below the cap, allowances are generated that could be "banked" for use in future years. Conversely, sources lacking sufficient allowance capacity are required to purchase permits from those with a permit surplus. In this way, sources with high abatement costs buy permits that allow emissions, while those with low abatement costs reduce emissions and sell permits.

It is the potential to sell emissions permits that creates an opportunity for further improving the financial performance of the proposed interim renewable energy generation facility. It is anticipated that under the rules of the proposed cap and trade program, the facility (and specifically its available emissions "credits") could be used to offset emissions generated by another off-site source that would purchase these credits.

The program does reward innovators in technology with the ability to produce and sell excess credits. Once emissions levels are capped, it is the market that ultimately enables participants the ability to buy and sell the "right" to pollute. In this case, the interim project would likely have credits to sell, which could produce an additional revenue source that is not accounted for in the pro-forma presented earlier.

California has already established a voluntary cap and trade market as a method to begin testing the transfer system. Within this voluntary market, the value of carbon offsets over the past 6-months has been in the range of $.30-$1.30 per metric ton annually. Once the cap and trade market is full established with emissions targets and authorizations, this value will fluctuate based on demand and market conditions. Given this condition, a specific value for the interim use cannot be assigned at this time.

By comparison recent prices in Europe, with an established Cap and Trade program, are about $8.22 per metric ton annually. This is however, a 65% drop from rates in 2011.

Renewable Energy Certificates

In 2002, California established an Renewable Portfolio Standard (RPS), with the goal of increasing the percentage of renewable energy in the State's electricity mix to 20 percent by 2017. The Renewable Resources Portfolio is a collection of renewable resources, categorized by quantity and technology type, selected based on various policy goals. The Portfolio standard was developed by lawmakers primarily as a key GHG reduction strategy. The California Public Utilities Commission (CPUC) is responsible for implementing the RPS Program.

State energy agencies recommended accelerating that goal, and in November 2008, Governor Schwarzenegger signed Executive Order S-14-08, echoed by the AB 32 Scoping Plan, and required that California utilities reach a 33% renewable electricity goal by 2020. The understanding was that in order to meet this goal, an increase in the development of "RPS eligible" energy projects would be needed.

Since renewable energy facilities are contributable to meeting California's mandated renewable energy goals, Executive Order S-14-08 set forth two directives: (1) the existing Renewable Energy Transmission Initiative would identify renewable energy zones that can be developed as such with little environmental impact, and (2) the California Energy Commission (CEC) and the California Department of Fish and Game (DFG) would collaborate to expedite the review, permitting, and licensing process for proposed RPS-eligible renewable energy projects.

Renewable Energy Certificates (RECs) are commonly implemented in tandem with RPS legislation. RECs can incentivize carbon-neutral, renewable energy by providing a subsidy to electricity generated from renewable sources. RECs are also tradable commodities, representing environmental characteristics generated by one-megawatt hour of electricity generated by a renewable energy source.

Consumers who purchase RECs in voluntary green power markets are providing financial assistance to renewable generators in the form of a production subsidy, and are effectively subsidizing a public good. When a company buys RECs, they are perceived to be purchasing the power directly and can therefore claim to be powered by renewable energy. Importantly, while purchasing RECs provides proof that renewable energy has been supplied, they don't offer valid proof that GHG emissions have been reduced.

In terms of market value, in general, REC market value is higher than that of carbon credits, while solar RECS (Solar Renewable Energy Certificates), in particular, are valued higher still. In the past 6 months, depending on the state, SRECs have traded in the range of $35 - $250 per credit, with one credit representing one metric ton of CO2 emissions.

Environmental Mitigation

Amendments to the California Environmental Quality Act (CEQA) were adopted in February of 2010, relating to the mitigation of impacts of GHG emissions associated with a proposed project. The amendments implement Senate Bill (SB) 97, which attempted to clarify much of the confusion regarding GHG mitigation analysis relative to CEQA guidelines that was created by AB 32. SB 97 attempted to provide greater certainty to CEQA lead agencies with regards to whether CEQA requirements have been met.

The amendments clarify whether GHG emissions associated with a project may in fact cause a significant impact. Outlined in Section 15064(b), the amendments are to be considered in assessing the significance of GHG emissions impacts. They focus on the potential incremental GHG emissions of a project, making use of "scientific and factual data." Metrics for such data are to be determined by the lead agency. Included in this assessment of consistency would be Specific Plans, regional blueprint plans, as well as plans for reducing GHG emissions.

Lead agencies can implement several different mitigation measures to offset or to reduce GHG emissions by adopting a qualified GHG Reduction Strategy consistent with AB 32. This strategy involves assessing "business as usual" current and forecasted emissions to calculate a baseline for reduction. The lead agency then proposes measures to reduce those emissions to meet AB 32 projected requirements.

A key issue for the lead agency is to determine the level of mitigation or project revision would be sufficient to avoid or eliminate a potential significant effect. The answer depends upon the specific project and situation.

To the extent that a significant effect on the environment is concluded relative to a proposed project, and pursuant to Section 15370 of the CEQA Guidelines, mitigation of such impact would include:

"(a) Avoiding the impact altogether by not taking a certain action or parts of an action.

"(b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation.

"(c) Rectifying the impact by repairing, rehabilitating, or restoring the impacted environment.

"(d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.

"(e) Compensating for the impact by replacing or providing substitute resources or environments."

In this case, the use of the proposed interim renewable energy generation project as a potential mitigation measure would be focused on minimizing the impacts of a new project by limiting the degree or magnitude of the action. By providing a specific portion of a project's electricity requirements through renewable sources, the renewable facility would help to reduce the reliance of a project on non-renewable energy sources.

Conclusion

Cap and trade, a policy authorized by and emanating from the principles of AB 32, creates a market for GHG emission allowances (California Greenhouse Gas Emissions Allowances), which are designed and distributed as a mechanism to help manage down offenders' emissions over time. Renewable Energy Certificates, also market instruments, are created by the investment in renewable energy project development, and are issued on the basis of the creation of one megawatt hour of electricity having been generated and delivered by an eligible renewable energy source. While these certificates represent the environmental attributes associated with electricity generated by a renewable resource, though they do not appear to be eligible for an emissions reduction credit.

With regards to the cap and trade program, the planned compliance start date is January 1, 2013. As this date approaches, the criteria defining a "covered entity" in the program must be carefully examined. According to the Air Resources Board (ARB), "first deliverers of electricity and electricity generating facilities located in California" would qualify as a "covered entity." In addition, other voluntary categories of participant exist, such as "Opt-In Covered Entities." Criteria for such voluntary participation must also be reviewed, and often require that such an entity submit a request to the Executive Officer of ARB, or his or her delegate, for participation approval. Program details, as well as the application process, are forthcoming from ARB.

8.0 FINDINGS

This study has examined the feasibility of implementing an interim renewable energy generation facility on a proposed multi-model transit center site. The current anticipated construction date for the transit center is beyond 20 years, creating an opportunity for the interim use of the site over a 15 to 20 year time period. Based on a review of the site opportunities and constraints, potential users of the electricity generated on-site, and case studies of similar projects, a solar energy generation facility was identified as the most viable energy generating interim use.

The proposed interim use would involve the installation of 11,600 solar PV panels over the CVAG-owned multi-modal transit center site and an adjacent site proposed for a future retention basin as part of the Section 19 Specific Plan. The solar energy generating facility would be capable of producing nearly 5.4 million KwH of electricity on an annual basis, assuming the use of 280W PV panels. A financial analysis of this proposed facility was completed, assuming that a private developer would lease the land from CVAG and sell the power generated on-site to a dedicated user or to the City of Rancho Mirage to permit residents to have access to a local renewable energy source.

While the financial analysis did not show a positive return on the initial invest for a potential developer of the solar energy generating facility, there are opportunities for the site to participate in the upcoming cap-and-trade program that will be implemented in the State of California as part of the AB32 legislation. The ability to sell carbon offsets or credits that could be assigned to this use under the cap-and-trade program could assist in changing the financial picture of the project to one that would provide positive returns. Other factors that could influence the viability of the interim use project include the rate for selling power generated on-site and the ability of the developer of the facility to qualify for and utilize tax credits or other renewable energy incentives offered by the state and federal governments.

In addition to the interim use concept, three build-out alternatives were developed and analyzed for the project site. These build-out alternatives all included the following primary elements:

- A 7,500 square foot transit center building serving the adjacent rail corridor and potential Sunline bus service
- New passenger platforms located along the Union Pacific rail tracks to facilitate an Amtrak and/or commuter rail stop
- A bus transfer facility, offering space for several public transit buses to stop and layover
- Mixed-use commercial buildings with opportunities for retail and/or office development
- Parking facilities that could be shared between the transit center, commercial uses, and the adjacent Agua Caliente Resort and Casino

The financial analysis completed for each of these three alternatives considered construction of the projects beginning in 2034, following the interim use period described above. In each case, the proposed development alternative would not result in a profit. However, it should be noted that the financial assumptions did not consider the potential for grant funding to be used for the construction of the transit center and its associated parking facilities. The financial analysis also considered current commercial lease rates in the Coachella Valley for the retail and offices uses. These rates are currently very depressed as part of the economic conditions of the past few years. Assuming future improvements in commercial lease rates in the Coachella Valley and the potential for grant funding sources to cover all or part of the cost of the transit center, it is possible that one or more of the build-out alternatives could become financially viable in the future.

Action Plan

Based on the findings of this study we have identified the following Action Plan for the City of Rancho Mirage and other stakeholders in this study effort to follow should the city decide to pursue the interim use concept. Actions are identified as near-term (1-3 years), mid-term (3-10 years) and long-term (10+ years). The reasonable or involved agencies are identified in parenthesis after each action.

Near-Term Actions

- Determine the level of interest possessed by the Agua Caliente Resort and Casino to be a potential customer for the power generated on-site under the interim use condition (Rancho Mirage, Agua Caliente).
- Examine the feaibility of the City of Rancho Mirage purchasing power from the facility to supply to customers in the city to provide a cost-effective and local source of renewable enrgy. (Rancho Mirage)
- Monitor the implementation of the planned cap-and-trade program in California as part of AB32 to determine if this program could provide a financial benefit for an interim renewable energy use at the site (Rancho Mirage).
- Identify a reasonable lease rate for the CVAG property should an interim use be implemented by a developer or the city on the site (CVAG, Rancho Mirage).
- Identify potential developers for the interim use concept, potentially through the release of a request for proposals to develop the interim use (Rancho Mirage).

Mid-Term Actions

- Select a developer and enter into a lease agreement with the developer to construct the interim solar energy generation facility (Rancho Mirage, CVAG).

Long-Term Actions

- Reassess the build-out development potential for the site with mixed-use development based on progression of development on adjacent parcels under the Section 19 Specific Plan (Rancho Mirage).
- Identify and pursue grant funding opportunities for the construction of the transit station building, platforms, and parking (CVAG).

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