

1. Project Summary

APPLICANT'S NAME

Sunesys, LLC
185 Titus Avenue | Warrington, PA 18976
tel 267.927.2000 | **fax** 267.927.2099 | **web** sunesys.com

CONTACT PERSON

Alan N Katz | Senior Vice President
185 Titus Avenue | Warrington, PA 18976
tel 267.927.2013 | **fax** 267.927.2099 | **mob** 267.718.0960
web sunesys.com | **em** akatz@sunesys.com

PROJECT TITLE

C³ | The Connected Central Coast

PROPOSED PROJECT AREA LOCATION (COMMUNITY / COUNTY)

This project will target the portion of the Central Coast between Salinas and Soledad comprised of approximately 430 square miles throughout two portions of Santa Cruz and Monterey Counties (see Figure 1). The proposed network will pass through 1,234 unserved and 447 underserved census blocks. Additionally, we believe this backbone has the potential to service a number of unserved and underserved adjacent census blocks.

Targeted Communities

- Castroville and the CA156 corridor towards Prunedale
- Chualar
- Gonzalez
- Soledad
- Salinas

PROJECT TYPE (LAST MILE OR MIDDLE-MILE)

Middle Mile

CASF FUNDING REQUESTED

\$11,970,000

DESCRIPTION OF THE PROJECT

¹The Central Coast is comprised of Santa Cruz and Monterey counties. It is a geographically large region covering a total of approximately 4,377 square miles. The coastline, including Big Sur, State Route 1, and the 17 Mile Drive on the Monterey Peninsula, as well as the words of John Steinbeck and the photography of Ansel Adams, have made the region world famous. The City of Monterey was the capital of California under Spanish and Mexican rule.

According to the 2010 U.S. Census, the region's population has grown to 677,439, a 3.1 percent increase over 2000. The 2010 population is made of 46.4% Hispanic, 43.2% White, 2% African-American, 0.4% Native American, 5.1% Asian, 0.3% Hawaiian-Island Pacific, 0.2% other and 2.5% other with more than one race.

¹ http://mcdses.co.monterey.ca.us/reports/downloads/2011_CAP_Plan.pdf



²The economy is primarily based upon tourism in the coastal regions, and agriculture in the Salinas Valley. The Salinas Valley is the center for Monterey County's 3.8 billion-dollar agriculture industry. Due to its temperate, Mediterranean-like climate and fertile soils, the county has become the number one vegetable-producing region in the nation. The area supplies 80 percent of the nation's lettuce and nearly the same percentage of artichokes. In addition, Monterey County has become one of the largest premium grape growing regions in California, with over 40,000 acres of wine grapes. The region is also home to some of the finest climate and marine scientists in the world, 26 research institutions, and a bevy of high tech firms.

In spite of its wealth in natural and intellectual resources, the region faces many challenges. Areas and populations of affluence along the coast contrast with areas and populations in poverty in North Monterey County and down the Salinas Valley, where most of the population lives. In spite of its readily available pool of entrepreneurial talent, Monterey County's GDP is concentrated in sectors with relatively low wages and job growth.

Unemployment and Poverty

A primary manifestation of these challenges is the economic and employment hardships experienced by the populations in the region. Unemployment and poverty in Monterey County disproportionately impacts North Monterey County and the Salinas Valley. As shown in the following table, unemployment and poverty for communities in North Monterey County and the Salinas Valley are significantly higher than at the county, state, or country levels.

Table 1

% Population	Unemployment		Poverty
	Oct, 2012	2011 Average	2006-2010
USA	7.9	8.9	13.8
California	9.8	11.7	13.7
Monterey County	8.8	12.4	13.9
Aromas	3.5	5.3	7.0
Castroville	16.6	23.2	13.8
Chualar	22.9	30.9	14.0
Gonzales	16.7	23.3	15.8
Greenfield	13.6	19.1	19.0
King City	14.6	20.5	14.7
Las Lomas	18.8	25.9	18.8
Moss Landing	19.4	26.7	11.5
Soledad	11.0	15.7	15.5

Unemployment data: www.labormarketinfo.edd.ca.gov

² http://www.salinaschamber.com/ag_industry.asp



Poverty data: U.S. Census Bureau, 2006-2010 American Community Survey - "Poverty Status in the Past 12 Months" (S1701)

Poverty statistics don't tell the whole picture regarding a family's ability to be self-sufficient in Monterey County. In 2009, Dr. Diana Pearce at the University Washington, on behalf of United Way and Insight Center for Community Economic Development, published a report titled *Overlooked and Undercounted 2009: Struggling to Make Ends Meet in California* (www.selfsufficiencystandard.org). In this report, Dr. Pearce collected and analyzed data and developed the Self-Sufficiency Standard for counties throughout California. "Self-sufficiency measures the actual cost of living, on a county-by-county basis, accounting for different family sizes, ages of children, and local variations in costs." In Monterey County, a family of three (two adults and one infant) would need to hold three and a half full-time, minimum-wage jobs to achieve self-sufficiency. The economic picture for this family of three looks like this:

- The 2008 100% Federal Poverty Level for this family is \$17,600;
- Three full-time minimum wage jobs at \$8.00/hour equates to \$49,920; and,
- Monterey County's Self-Sufficiency Standard is \$51,571.

The impact of unemployment and poverty is compounded by the seasonal nature of work in the region. The following table compares unemployment in the winter month with the annual average employment (in bold), illustrating the seasonal nature of employment in Monterey county.

Table 2

Unemployment (% pop)	Monterey County	California	US
Jan, 2011	17.4	12.7	9.1
Feb, 2011	16.9	12.3	9.0
Average 2011	12.4	11.7	8.9
Jan, 2012	15.5	11.3	8.3
Feb, 2012	15.3	11.4	8.3

Unemployment data: www.labormarketinfo.edd.ca.gov

These economic issues translate to educational and health challenges for much of the region.

Education

In her June 2011 "Annual Academic Achievement Accountability Report"³ Dr. Nancy Kotowski observed that Monterey County educators face significant challenges due to the disproportionate number of students in Monterey schools who were learning English as a second language, were economically disadvantaged, and belonged to migrant worker families.

Table 3

% of students	Monterey	California
English Learners	39.7	23.7
Economically Disadvantaged	64.3	55.0

³ <https://sites.google.com/a/mcoeapps.org/montereycoe-san/home/monterey-county-data/mcoe-presentations>



Migrant Students	22.3	2.8
------------------	------	-----

The results are quantified in the following table, which compares the educational attainment of populations at the local, county, state, and national levels (the communities in bold are those covered in this proposal).

Table 4

% of population	< High School (no diploma)	High School or GED	Some College	Associate	BA	Graduate or Professional
US	15	29.0	20.6	7.5	17.6	10.3
California	19.3	21.5	21.5	7.7	19.2	10.8
Monterey	29.3	20.6	19.6	7.2	14.2	19.2
Castroville	63.8	22.3	4.9	4.2	3.5	1.1
Chualar	66.8	16.7	7.8	4.4	4.4	-
Gonzales	50.7	26.8	13.3	5.4	2.7	1.1
Greenfield	52.0	21.1	11.8	7.8	5.6	1.7
King City	56.9	18.3	13.1	5.7	3.4	2.7
Las Lomas	67.4	15.4	6.4	1.9	7.6	1.3
Moss Landing	32.8	6.2	29.2	28.7	-	3.1
Soledad	46.0	28.3	15.2	5.2	3.8	1.4

U.S. Census Bureau, 2006-2010 American Community Survey - "Educational Attainment for the Population 25yrs and Over" (B15002)

Health

In their "Strategic Plan 2011-2015"⁴ the Monterey County Health Department made two important observations:

- "For decades, researchers have known that poverty and health status are directly correlated; the lower a person's socioeconomic status, the greater are his or her chances of having some sort of health disorder."
- "Research has repeatedly correlated lower educational attainment and shorter life expectancy."

Based on these relationships, and the economic and educational challenges described above, it is not surprising to find health challenges in Monterey County characteristic of a poorer, less well educated population. Following are the health status indicators in which Monterey County ranked low relative to counties in California, including Monterey's numerical ranking among the 58 counties⁵:

- Deaths due to homicide (58th)

⁴ [http://www.co.monterey.ca.us/cob/Supplemental_Addendum_2011/December 13, 2011/S-3 Final.Health Strat Plan. Proposed.pdf](http://www.co.monterey.ca.us/cob/Supplemental_Addendum_2011/December_13,_2011/S-3_Final.Health_Strat_Plan_Proposed.pdf)

⁵ From the California Department of Public Health's report "County Health Status Profiles - 2012, <http://www.cdph.ca.gov/pubsforms/Pubs/OHIRProfiles2012.pdf>





- Firearm-related deaths (44th)
- Births to adolescent mothers (53th)
- Prenatal care not begun during the first trimester of pregnancy (39th)
- Adequate prenatal care (39th)

Business

In the report “Projections for the AMBAG Region 2010-2035”⁶ developed for the Association of Monterey Bay Area Governments” (AMBAG, <http://www.ambag.org/>), Stephen Levy of the Center for Continuing Study of California made a number of observations regarding the Central Coast’s regional economy. First, consistent with the discussion above, he observed that the largest job sectors in the AMBAG region are Agriculture, Government, Leisure & Hospitality and Self Employed, and that the region has a below average share of the fastest growing high wage sectors including Information and Professional and Business Services. Then, based on this data and his analysis, he stated that the region’s economic base suggests below average future job growth relative to California, and that AMBAG is one of the slowest growing regions in the state measured by future job growth.

In their August 2011 report “Economic Opportunities in Monterey County: Asset Inventory and Opportunity Identification,”⁷ developed for the Monterey County Board of Supervisors, the Center for Science, Technology & Economic Development SRI International made similar observations that most of the County’s GDP is concentrated in agriculture and tourism sectors which have relatively low wages and job growth potential, and that most of the future job growth is in high-wage, knowledge-intensive sectors, including post-secondary education and technical services. They made the additional observations that there is a very strong cohort of highly-trained researchers and educators in the region. That this segment of the population can provide the intellectual power to create new products and services, and may be a pool of entrepreneurial talent as well. That the presence of this high-quality research and intellectual talent base indicates the readiness of the County to support the growth of high-technology, research-intensive businesses. They then presented a number of competitive disadvantages the region needed to address. Of particular interest they observed that the region lags significantly in the coverage of higher speed communication services, and that as more and more businesses become dependent on exchanging high volumes of information, from engineering drawings to financial transactions, insufficient broadband infrastructure could be a key constraint on growth.

Broadband⁸

We have shown that, in spite of its wealth in natural and intellectual resources, the Central Coast faces many challenges in the areas relating to the economic, academic, and personal health of its population, as well as in the potential for economic development of the region.

These challenges form a vicious cycle in that they are self-reinforcing; lower education levels lead to increased poverty which further lowers educational achievement, the strains of poverty negatively impact health which further lowers economic opportunities, etc. And all of these factors result in a poor social foundation for a robust and dynamic regional economy. Fortunately, there is a strategy for addressing all of these challenges in an efficient and effective manner: **improve regional broadband infrastructure.**

Broadband provides access to a wide range of resources, services, and products that can enhance life on the Central Coast in a variety of ways. Broadband can overcome geographical and financial barriers to provide access to a wide

⁶ http://www.ambag.org/pdf/forecast_2012/regional_forecast_pres.pdf

⁷ <http://www.co.monterey.ca.us/EconomicDevelopment/economic-development-strategic-plan-updates.shtml>

⁸ http://www.broadband.gov/broadband_advantages.html, <http://broadband.about.com/od/broadbandapplications/a/Benefits-Of-Broadband.htm>



range of educational, cultural, and recreational opportunities and resources. It levels the playing field when it comes to educational resources. Children in both affluent and low income communities can all access the same resources. Textbook materials can be complemented with online resources, and children can access all of these materials from school and home.

Broadband facilitates the provision of medical care to unserved and underserved populations through remote diagnosis, treatment, monitoring, and consultations with specialists. It facilitates efficiency in healthcare delivery and creates opportunities for doctors and healthcare specialists to work together as a virtual team, with specialists located in any part of the world. A family practitioner in a small rural town can send medical images of a patient to a specialist in any part of the world for an instant expert consultation.

Broadband promotes economic development and revitalization through electronic commerce (e-commerce) by creating new jobs and attracting new industries, and providing access to regional, national, and worldwide markets. Businesses need broadband to compete on a global level, and seek out high speed broadband access when choosing to grow their business. High speed access accelerates business development, and provides new opportunities for innovation, expansion, and e-commerce. Communities that connect their residents create wealth and attract business investments.

In addition, broadband provides a number of additional benefits. Electronic government can help streamline people's interaction with government agencies, and provide information about government policies, procedures, benefits, and programs. Broadband can help protect the public by facilitating and promoting public safety information and procedures, including, early warning/public alert systems and disaster preparation programs, remote security monitoring and real time security background checks, and backup systems for public safety communications networks.

Broadband Challenges

While offering some of the great natural assets of the Central Coast, its geography also represents a major impediment to the deployment of broadband services. The Central Coast is composed of a rugged and challenging topography of mountains, canyons, redwood forests, creeks and beaches, of national, state, and regional parks, as well as large areas of open spaces and the vast agricultural fields of the Salinas Valley, the county's primary economic driver. Many areas have been protected to preserve this natural beauty with oversight from the Coastal Commission, landowner's associations, and environmental regulations.

Due to these challenges, the region lacks a comprehensive, integrated, open access, middle mile broadband infrastructure to meet its current and future needs. There is no comprehensive regional backbone infrastructure in place that can effectively link the last mile community providers who serve end users to the global Internet. And this is only the beginning. Nielsen's Law of Internet Bandwidth⁹, first articulated in 1998, is still holding true nearly 14 years later. At this rate, user broadband speeds will surpass 100 Mb/s by 2015. The implications being that any bandwidth problems the region has today are only going to get worse.

Furthermore, a 2012 report, California's Digital Divide, by the PPIC (Public Policy Institute of California) found that although 73% of all Californians have broadband at home, only 58% of Latinos and only 60% with annual household incomes under \$40K¹⁰. These demographics are well represented in the targeted region.

As a result, the telecommunications companies that currently serve various communities on the Central Coast face even more risk than their more urban counterparts because they serve a distributed population over a wide geography with large areas of challenging terrain. Thus, these companies must work harder to serve fewer people, in most instances they do not enjoy the same return on investment that is returned to telecommunications companies serving urban areas. Thus,

⁹ <http://www.useit.com/alertbox/980405.html> - Which predicts that a high-end user's connection speed grows by 50% per year.

¹⁰ http://www.ppic.org/main/publication_show.asp?i=263#.UQn5Jx8nsc8.gmail

reliance on simple market forces to serve such communities in California will result in a very large number of unserved and underserved citizens.

Proposal

Based on our analysis of the Round 6 data as of July 2012,¹¹ the tri-county area (Santa Cruz, Monterey, San Benito counties) comprising California's Central Coast in the Monterey Bay area has in excess of 40,000 households that do not have broadband service available at the level defined as "served" by the CPUC (6Mb/s down, and 1.5Mb/s up).

For this proposal we have targeted the following communities (highlighted above in the above discussion):

- Castroville and the CA156 corridor towards Prunedale
- Chualar
- Gonzalez
- Soledad
- Salinas

By serving these communities we will bring in excess of 11,600 households from under or unserved to served levels of broadband service.

Our strategy in this middle-mile project is to install new fiber from the city of Santa Cruz to the first major fiber point-of-presence (PoP) in the Salinas Valley at Soledad, and to partner with regional Internet Service Providers (ISPs) to provide service to these communities. This will extend existing fiber from Sunnyvale to Soledad, creating fully redundant fiber service to the region with connectivity to major fiber PoP's in Sunnyvale and Soledad. In addition it will provide service to end users at or exceeding the 6Mb/s down and 1.5Mb/s up standard set by the CPUC.

Additional coverage of the Carmel / Big Sur area, San Benito County, and the southern portion of the Salinas Valley including Greenfield, King City, and points further south were also considered for this proposal. The additional cost to serve these areas would significantly increase the cost per household of the project.

The proposed solution consists of a high count fiber optic cable, capable of carrier class transmission speeds of 100 Gbps per fiber strand and beyond, being installed from Santa Cruz to Salinas and continuing to Soledad. Our plan is for local service providers throughout the Central Coast to use this "middle mile" solution to bring affordable broadband to the communities. Our backbone will be carrier neutral, in that Sunesys will not discriminate between service providers applying for access.

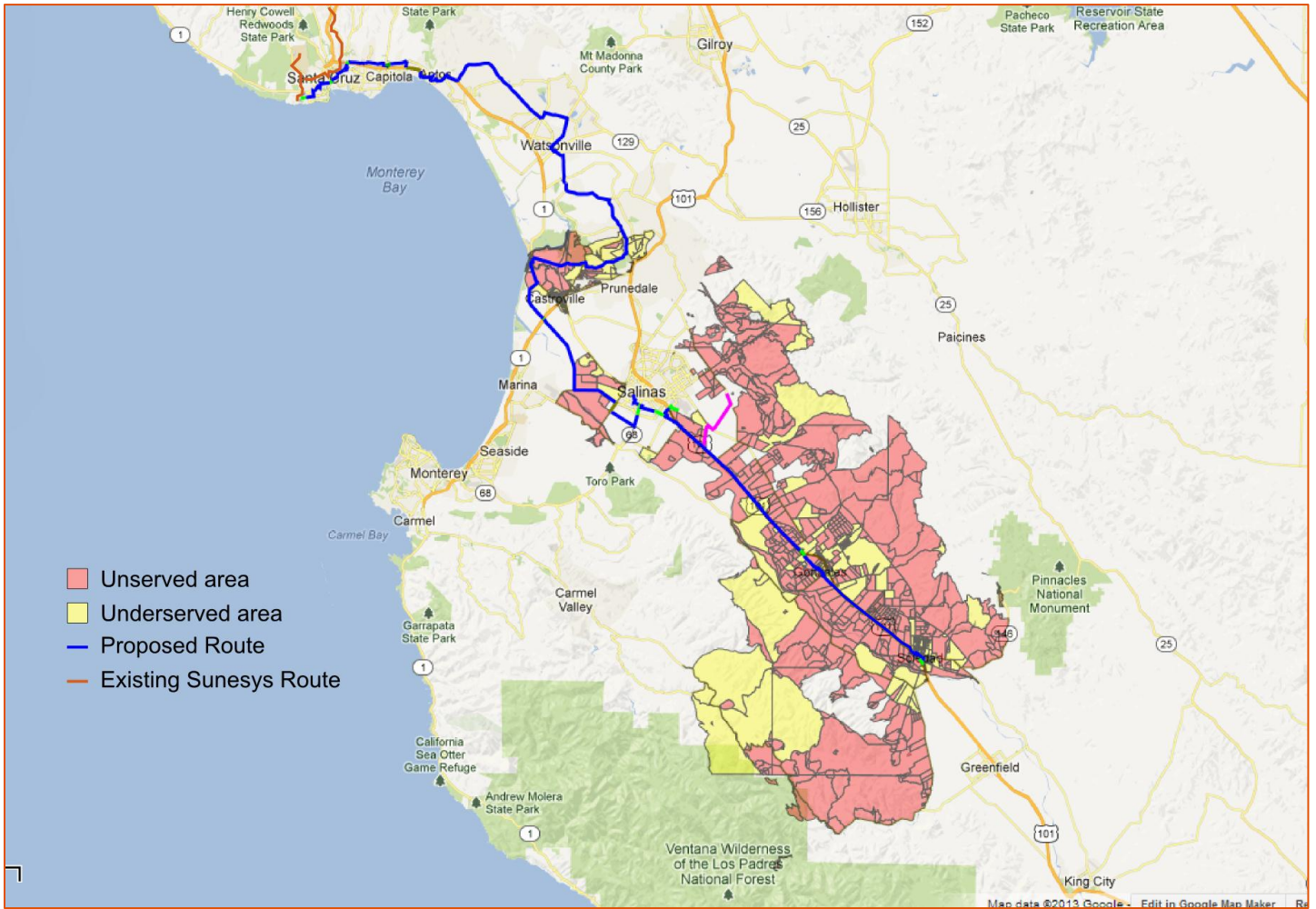
Once in place, this backbone will have the potential to serve up to 11,752 households in the Central Coast. The potential for the network extends beyond individuals however. Businesses already in place would benefit from the boost in affordable bandwidth, and business looking to move into the area would have fewer barriers to entry as well.

Many parts of California's Central Coast fall into CPUC's definition of unserved and underserved communities. Geographical and Economic conditions continue to limit broadband deployment and adoption in these communities. As a dark fiber and high-bandwidth private fiber provider, Sunesys hopes to bring these communities into the information age by constructing a fiber backbone through the heart of these communities back to the data centers and wholesale ISPs located in Santa Cruz. This backbone will create an affordable channel for the local service providers to bring high speed broadband in areas of the Central Coast.

¹¹ <http://www.broadbandmap.gov/data-download>

MAP OF THE PROPOSED PROJECT

Figure 1



LIST OF ZIP CODES / CENSUS BLOCK GROUPS

Table 5

Location	CBG #	Exceptions	Zip Code
Castroville	060530103051	060530103051000, 060530103051008	93907
Castroville	060530103052	060530103052011	93907
Castroville	060530104001		95012
Castroville	060530104002		95012
Castroville	060530104003		95012
Castroville	060530104004		95012
Salinas	060530106061	060530106061004, 060530106061007, 060530106061010,	93905



		060530106061012, 060530106061022, 060530106061055, 060530106061090, 060530106061091, 060530106061095, 060530106061113, 060530106061117, 060530106061140, 060530106061141, 060530106061151, 060530106061153, 060530106061154, 060530106061156, 060530106061192, 060530106061209, 060530106061210, 060530106061211, 060530106061212, 060530106061213, 060530106061214, 060530106061216, 060530106061217, 060530106061221, 060530106061233, 060530106061234, 060530106061240, 060530106061241, 060530106061243, 060530106061258, 060530106061260, 060530106061295, 060530106061297	
Gonzales	060530108041		93926
Chualar/Gonzales	060530108042		93926
Gonzales	060530108043		93926
Soledad Prison	060530109001		93960
Soledad	060530111011	060530111011106, 060530111011143	93960
Soledad	060530111012	060530111012005	93960
Soledad	060530111013		93960
Soledad	060530111021		93960
Soledad	060530111022		93960
Soledad	060530111023	060530111023027, 060530111023032	93960
Las Lomas	060530146012	060530146012000, 060530146012001, 060530146012001, 060530146012002, 060530146012003, 060530146012004, 060530146012005, 060530146012006, 060530146012007, 060530146012008, 060530146012009, 060530146012010, 060530146012011, 060530146012012, 060530146012013, 060530146012014, 060530146012016, 060530146012017, 060530146012018, 060530146012019, 060530146012020, 060530146012021, 060530146012022, 060530146012023, 060530146012024, 060530146012025, 060530146012026, 060530146012027, 060530146012052, 060530146012053, 060530146012054, 060530146012070, 060530146012071, 060530146012072, 060530146012073	95039
Castroville	060530147001	060530147001000, 060530147001001, 060530147001002, 060530147001003, 060530147001004, 060530147001010, 060530147001011	95012
Castroville	060530147002	060530147002006, 060530147002009	95012
Castroville	060530147003	060530147003000	93907
Castroville	060530147004		95012
Gonzales	060530148001	060530148001000, 060530148001005, 060530148001034, 060530148001035, 060530148001050, 060530148001088	93925
Chualar	060530148002		93908
Gonzales	060530148003		93926
	Entire Area		

