

LEVERAGING LEADING EDGE SUSTAINABILITY PLANNING

Setting an example is not the main means of influencing others; it is the only means.” - Albert Einstein

A Northern Section--SFSU DUSP Client Project

Prepared for:
The American Planning Association
California Chapter--Northern
Sustainability Committee



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PREFACE

Scott Edmondson, August 3, 2011

VERSION 1.5 – A WORK IN PROGRESS (AUGUST 3, 2011)

The SFSU student team produced Version 1 of this paper on May 22, 2011 for their class requirement. That product is an amazing synthesis of much work squeezed into the short duration of a one-semester research project/practicum class.

Although an excellent job and fulfilling the class requirement, that version needed some editing and further development to meet the objectives of the Sustainability Committee's larger research project to which it contributes. I have undertaken that job and found it to be beyond my available resources for timely production for Northern Section use. As a result, I summarize below the work done to date and publish this useful work in progress for Northern Section use. I will complete the larger project of editing and content extension in the future.

The Team focused first on developing the case studies (Chapters III and IV), second on developing the implications of those case studies (Chapters III and IV), third on developing recommendations (Chapter V), and fourth on providing the contextual information in the introduction (Chapter I). The Team did not have the time to develop a chapter on leading-edge frameworks, which I have begun (see Chapter II), but which is still incomplete in this Version 1.5.

This Version 1.5 also contains some formatting and editing issues that I will correct. The Committee felt that it would be better, on balance, to publish a less polished version now versus a final report at less certain future date.

Editing to date has focused on Chapter I, Introduction, and Chapter II, Frameworks. Chapter's III, Benchmark Cases, IV, Northern Section Cases, and V, Recommendations are unedited and are the Team's primary content.

COLLABORATION OPPORTUNITY

Because this report is a work in progress, you, the reader, have an opportunity to influence final content through your questions and suggestions, which you can send to me directly, scott-e@sustainability2030.com, or which you can post to the [Northern Section-SFSU Report discussion journal](#) by also sending me an email with "Northern Section-SFSU Discussion" in the subject line.

REPORT SUMMARY

A short summary of the Report was published in the Northern News, [Plan-It Sustainably column](#), July/August, 2011, page 7. It is reprinted below, for your convenience.

Northern Section-SFSU client project: Leveraging the leading edge of sustainability

Sustainability planning is everywhere these days; but where is the leading edge of sustainable community planning and how can we leverage it to enhance our own initiatives? This core question captured the imagination of three graduating seniors in SFSU's Urban Studies and Planning Program.

The Sustainability Committee/SFSU student collaboration launched the Committee's research program. Exploring leading edge sustainability planning cases and assembling an initial set of useful resources was the objective. As Albert Einstein said, "Setting an example is not the main means of influencing others; it is the only means." However, which examples are worth emulating?

Scott pitched the initial concept to the class, and the project developed in three phases.

- (1) A week of self-training in strategic sustainability planning frameworks;
- (2) a survey and assessment of international "benchmark" cases; and
- (3) an exploration and profile of Northern Section cases.

These phases illuminate the state of sustainability planning and provide leading edge examples to explore and model.

The final SFSU report includes three overarching recommendations. Although one agency, initiative, or jurisdiction cannot implement them alone, they provide insight that can stimulate innovation in our own initiatives. The team concluded that, "beyond the fundamental need for every plan to be developed using a strategic framework" and using science-based sustainability success principles, three other characteristics contributed to success.

First—plan in context, not in isolation: Effective sustainability planning can- not exist on a city-by-city basis, but must be addressed holistically, in a closed loop, cradle-to-cradle approach to urban metabolism—as an "organic whole" says Timothy Beatley in *Green Urbanism*. That implies a new system of metropolitan planning and governance capable of a fresh approach to urban, suburban, rural, and natural systems issues alike. In 1991, [New Zealand](#) reorganized its governance and planning along bioregional watershed boundaries with great success.

Implication: View jurisdictional environmental quality and economic prosperity as the product of interrelationship with the larger region, not simply the product of isolated, jurisdiction-specific factors. Plan and make decisions accordingly, leveraging the supporting regional interrelationships. Transform the concept of "home" in "home rule" from isolated to interrelated.

Second—collaborate: "The most successful plans ... are the result of a collaborative [multi-stakeholder] effort. ... There is a creativity and attention to multiple factors that result from these interdisciplinary processes," writes Beatley.

Implication: Instead of pursuing individual projects and/or regulatory compliance, launch ongoing, multi-stakeholder, community sustainability planning initiatives to drive the ongoing socio-economic/environmental innovation required for success.

Third—cultivate educational dialogue: “We must begin extensive, far reaching campaigns to educate the public about sustainability, why a shift is necessary, and what they can do to help.”

Implication: Sustainability is fundamentally about multi-stakeholder education and dialogue, ultimately connected to planning, the sum of which will correct our course from the unsustainability of business as usual to sustainable communities. Begin the dialogue now, ahead of sustainability planning initiatives, and continue them during planning and implementation.

With many thanks to the SFSU team for their excellent work, we begin the Sustainability Committee’s research program. We invite you to comment on this [article](#); review the [project report and resources](#), including the pitch to the class, presentation to the board, and report; and comment and discuss as motivated.

I. INTRODUCTION

The client for this APA/SFSU client project is the Sustainability Committee of the American Planning Association California Chapter, Northern Section. Scott T. Edmondson, AICP, Co-Chair of the Sustainability Committee, was the Committee's point person and project director. The Committee's mission is to accelerate effective sustainability planning in the Northern Section in response to the increasing urgency of the challenge. The project involved surveying sustainability planning in the Northern Section and highlighting the most innovative, leading-edge cases. The Northern section consists of 16 counties: Del Norte, Humboldt, Mendocino, Lake, Sonoma, Napa, Marin, Solano, Contra Costa, San Francisco, San Mateo, Alameda, Santa Cruz, Santa Clara, San Benito, and Monterey. The Team researched sustainability plans for all these counties and their major cities to provide an exhaustive inventory. The team chose eight innovative plans to highlight for their creativity and effectiveness. By profiling these plans, the Team hopes to provide a resource planners can use to accelerate innovation and effectiveness.

THE CLIENT

The American Planning Association (APA) is a non-profit membership organization dedicated to education and leadership in the planning and development of vibrant communities. At the national, state, and local level, the APA offers its 40,000-plus members resource support, educational materials, and partnerships to advance good planning and tackle the many land use and planning challenges the nation faces. Many local chapters make up the APA nationwide. The California Chapter consists of eight sections, one of which is the California-Northern (informally known as the Northern Section or simply, the Section). This client project's objective is to provide Scott T. Edmondson, AICP, the Co-chair of the Sustainability Committee, with an overview of the state of sustainability planning in the Northern Section and to highlight particularly innovative cases. The Committee's mission is to accelerate innovative and effective sustainability planning in the Northern Section.

The Northern Section is the largest section in California, and the nation, with over 1,900 members in rural, suburban, and urban areas alike, covering the coastline of Monterey all the way to the California/Oregon border. Spanning such a vast area has its challenges. In September of last year the Northern Section's Board of Directors formed a Sustainability Committee to develop a "learning and practice network" to encourage and aid effective sustainability planning in the section. For Section planners, the network will provide tools, resources, and case studies for effective sustainability planning, policy and projects.

PRIMARY APPROACHES TO SUSTAINABILITY PLANNING

One thing everyone knows about sustainable development is that no one really knows how to define it—or that everyone does.

BRUNDTLAND—PATH-BREAKING SYNTHESIS

The most widely recognized definition of sustainability comes from the Brundtland Commission's now famous report, *Our Common Future* (1987). Sustainability, as defined by the Commission, is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It was the first definition to integrate into a symbiotic relationship the here-to-fore opposing concepts of economic development and environmental quality. As accurate as the definition is, and as beneficial as its simplicity is, the definition is hard to apply without further interpretation and refinement.

JEPSON—SMART GROWTH, NEW URBANISM, AND THE ECOLOGICAL CITY

According to Planning Professor Edward Jepson in his article "*How possible is Sustainable Urban Development? An Analysis of Planners' Perceptions about New Urbanism, Smart Growth, and the Ecological City,*" planning practice has primarily addressed sustainable development within three theoretical frameworks--smart growth, new urbanism, and the ecological city. Each of these three approaches have their own lineages of concept and practice. Of these three approaches, smart growth attempts to restrain sprawl; new urbanism is more design oriented and focused on building to the human scale; while the ecological city approach is rooted in transformative ecological design. Until recently, the ecological design approach was more theory than practice, but this has been changing quickly over the past five years, particularly in mega urban development projects in Asia. All of these approaches use different sets of sometimes overlapping principles.

Dr. Jepson's analysis identifies fourteen key principles defining sustainability planning. They cover a broad range of topics from jobs-housing balance to locally produced, clean, and renewable energy. The Team often used Dr. Jepson's synthesis of 14 sustainability principles for guidance in reviewing and identifying cases of innovative sustainability planning. Those 14 principles are as follows:

1. Jobs-housing balance
2. Spatial integration of employment and transportation
3. Mixed land use
4. Use of locally produced, clean, and renewable energy sources
5. Energy and resource efficient building and site design
6. Pedestrian access (walking and biking) to work and leisure
7. Housing affordability
8. Housing Diversity (size, style type)

9. Higher Density residential development
10. Protection of natural and bio functions and processes
11. Resident involvement and empowerment
12. Social spaces (public spaces to encourage social gathering)
13. Sense of place
14. Inter-modal transportation connectivity

THE NATURAL STEP'S STRATEGIC SUSTAINABILITY FRAMEWORK

If it existed, the Team needed an ideal sustainability planning framework to understand what could be termed “ultimate” sustainability planning practice to use as a guide for identifying the most innovative current cases of sustainability planning and for the types of changes that might enhance effectiveness. After reviewing some of the primary frameworks in use today, the Team turned to The Natural Step (TNS) and its Framework for Strategic Sustainable Development (FSSD). The characteristics that stood out in its selection are as follows:

1. Its inclusivity relative to other sustainability frameworks and tools;
2. Its effectiveness when working in complex systems and applicability to communities, businesses, or any other entity or issue;
3. Its powerful, principle-based definition of sustainability and ultimate success.
4. Its simple, but powerful, four-step-ABCD, self-funding methodology for beginning, and ultimately, successfully completing the journey to sustainability.

Please see the next chapter for a more detailed discussion of sustainability frameworks, TNS, and the FSSD.

METHODOLOGY

The Team's project would create the first installment of resources for the new Committee's learning-practice network. In order to be able to highlight leading-edge innovative sustainability planning in the Northern Section, the Team needed a general understanding of the concepts and key elements of leading-edge, effective, innovative sustainability planning. Currently, there is no societal or practice-wide consensus on how to define “sustainability,” and there is no definitive, widely held understanding of what makes something sustainable. What is sustainable? How would one recognize a “sustainable” system or community? How does one operationalize sustainability? These fundamental questions need clarification in order for anyone to conduct sustainability planning effectively, especially for a longer-term, on-going effort required for sustainability success.

To accelerate the process, the Client designed a one-week “quick training” curriculum. Therefore, the Team's first task was to complete a self-training in the main sustainability frameworks and

principles in use today and to synthesize the most salient features. The program took 1 week to complete, but was continued over the project duration in smaller doses.

The training consisted of current journal articles, best practices, and multimedia resources highlighting various models of sustainability worldwide. The training materials focused on The Natural Step (TNS) and its Framework for Strategic Sustainable Development (FSSD) as one of the preeminent strategic sustainability frameworks and planning methods, including its evolution and adaptation to Integrated Community Sustainability Planning (ICSP) in Canada, and Eco-Municipal Planning in Sweden and the U.S. An interesting innovation in the FSSD is the use of Max Neef's nine fundamental human needs for addressing social sustainability. In addition, three articles by Professor Edward Jepson provided powerful overviews of professional planning's experience with sustainability and the challenges to planning in responding effectively. His fourteen principles of sustainable development planning was a valuable distillation, and his summary of the literature on resilient cities was instructive. The Team researched additional literature pertaining to Dr. Jepson's three arenas of primary responses within the professional public planning arena—smart growth, new urbanism, and the ecological city. Finally, key economic factors in a new approach to protecting the biosphere while improving profits and increasing competitiveness came from “A Road to Natural Capitalism” by Amory Lovins, L. Hunter Lovins, and Paul Hawken.

These resources provided an overview of current thinking about sustainable development and highlighted the fundamental systemic conditions in human society that undermine the ability of nature to function that each framework addresses. The resources also illuminated the range of responses embedded in these primary approaches to sustainable development. This set of resources illuminate the primary physical, political, and policy challenges of community sustainability planning and the requirements of an effective response. The Natural Step's FSSD played a significant role in guiding the Team's research. The powerful FSSD organizes the five different arenas of planning and associated activity required for effective whole-systems problem-resolving, provides a principle-based definition of sustainability that is used as a compass for making the decisions that strategically navigate towards sustainability, employs backcasting (not forecasting) from sustainability success principles to define a strategic action plan of on-going innovation to achieve community well being and economic prosperity and security with net-zero or ultimately regenerative environmental impacts. In addition, the FSSD is not mutually exclusive of other frameworks, methods, and tools, but is inclusive. The FSSD organizes understanding and action for maximum effectiveness when addressing whole systems problem resolving, particularly that of sustainability. It also includes a process of multi-stakeholder, cross-sectoral collaboration that can lead to transformative results under the right conditions.

The net result of the initial training was a heightened awareness of the key issues and primary responses posited as required for successful sustainability planning. With this understanding, the Team broadly surveyed leading-edge cases of innovative sustainability planning internationally. These cases are referred to as the “benchmark” cases, because they establish the existing international “bar” for best practice innovative sustainability planning. The search for benchmark cases was conducted through client referral and structured keyword searches using public search engines, as well as locating previous case studies conducted by The Natural Step (TNS). To increase

the reliability of the research, academic databases and journals were searched as well. After quickly assembling a pool of candidates and identifying the outstanding cases, a set of 4 cases was identified for detailed study to identify their primary innovative measures, to evaluate their success or potential for success, and to then compare their innovative attributes to those of theory.

With a solid theoretical understanding of ultimate sustainability planning practice, and solid understanding of the most innovative cases of innovative sustainability planning internationally, the team was ready to review local sustainability planning, highlight the most innovative cases, and develop additional ideas useful for amplifying innovation, effectiveness, and success. For the literature review, it was important to establish regional research parameters in the search for information. The regions identified consist of the 16 counties of Northern California and the San Francisco Bay Area. Within these counties, practices of innovation such as sustainable development policies and non-profit work pertaining to the field of sustainability were identified using online search engines. Additional information was obtained through qualitative methods such as email and telephone conversations.

RELEVANT ACADEMIC COURSEWORK

The Team's coursework in the Department of Urban Studies and Planning program provided a foundation in sustainable development and an understanding of the larger issues and concepts of sustainability. The Team acquired research, analysis, and other technical skills their Research Methods, Data Analysis, and Urban Policy and Analysis courses. Courses such as Sustainable Development in Cities provided a framework for understanding and approaching sustainability issues. The course explored how cities manage different urban "metabolic" subsystems, such as waste, transportation, water, energy, etc. The course in Alternative Urban Futures illustrated how some communities incorporated the consideration of environmental impacts and quality of life into planning methods and decisions using such concepts and initiatives as smart growth, new urbanism, and transit-oriented development. This highlighted a key point about sustainability, that unsustainable practices arise not simply from larger systemic conditions and trends in society, but from local urban planning and design as well. The good news from this point is that planning and design can play a key role in society's effective response to sustainability challenges.

Other courses about how cities have changed over time provide insight into why planners and municipal governments today are responding to the sustainability challenge. Major societal processes such as modernization and industrialization have strongly influenced urban function and appearance. Those processes have been linked to the cause of many current environmental and social issues.

Stepping back to the largest vantage point, those larger socio-economic processes appear to have brought not only material abundance beyond anything yet produced historically, but also have brought us to a biospheric tipping point. As trends continue, their effect will be The continuation of current socio, environmental, and economic trends will lead to biospheric systems disequilibria, and possible collapse. The planning decisions made today will determine the viability of future

generations. The biggest culprit is fossil-fuel-burning induced catastrophic climate change unless emergency changes are made quickly. The dire consequences of this accelerating trend, along with peak oil, a 50 percent increase of 3 billion new passengers on space ship earth by 2050 (9 billion total), and rapid globalization, make the lightening-fast transition from a fossil-fuel-based economy to one powered by renewable energy in order to avoid the worst catastrophes of climate change the defining environmental, economic, and community sustainability planning challenge of the 21st century. If this challenge is met as one component of a larger sustainability strategy, and met with methods that fit within the frame of sustainability, success will breed a surprising degree of durable economic prosperity and security that is simply not possible under our present, fossil-fuel-based economy and business as usual.

These major environmental and social concerns have led various individuals, groups, organizations and other bodies to sustainable development as the primary response to such issues. The most notable breakthrough in the attempt to address the fundamental, reciprocal relationship between economic development (growth) and environmental quality goes back to the Brundtland Commission's definition in its now famous "Report of the World Commission on Environment and Development: Our Common Future." Sustainability as defined by the Commission is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. In 1987, it was a breakthrough definition and turning point for the world's international development community because it combined economic development in a symbiotic, mutually reinforcing positive relationship instead of the opposing reciprocal relationship in which they had been held, and often still are held. However, because this definition requires interpretation and refinement to use it operationally for problem solving and program development, the many organizations that used it developed different methods, approaches, and interpretations. For instance, Melbourne, Australia is famous for its 10 Melbourne Principles developed through an international expert Charrette process as part of the U.N. Earth Summit 2002 sponsored by the United Nations Environment Programme and the International Council for Local Environmental Initiatives. Those ten principles were developed for use by any city anywhere as a guide to move their cities towards sustainability. Vancouver has ten top strategies it is pursuing to become the world's first sustainable city by 2020. Other cities and organizations have developed their own methods to guide their sustainability planning.

II. FRAMEWORKS

To be developed.

INTRODUCTION

LEADING FRAMEWORKS

TNS AND THE FSSD

The Team needed an ideal sustainability planning framework to illuminate the key characteristics of innovation and effectiveness in current practice. After reviewing some of the primary frameworks in use today, the Team turned to The Natural Step (TNS) and its Framework for Strategic Sustainable Development (FSSD). The characteristics that stood out are as follows:

1. Its inclusivity relative to other sustainability frameworks and tools;
2. Its effectiveness when working in complex systems;
3. Its powerful, principle-based definition of sustainability and ultimate success.
4. It's simple, but powerful, four-step-ABCD, self-funding methodology for beginning, and ultimately, successfully completing the journey to sustainability.

TNS is an international nonprofit organization founded in 1989 by Dr. Karl-Henrik Robert in Sweden. Along with a group of scientists, Dr. Robert developed “a proven, science-based model that helps communities and businesses better understand and integrate environmental, social, and economic considerations” into sustainability planning.⁴ TNS’s framework is a comprehensive method for planning effectively in “complex systems.”⁵

To illustrate the challenges that communities (and businesses) now face from the unsustainability of business as usual (BAU), TNS uses the metaphor of a funnel. The walls of the funnel illustrate the declining capacity of the earth to support the human economy as demand for resources and services increases and the supply of those ecosystem resources and services declines. The spout of the funnel represents the opportunity for sustainability success. As time passes, the diameter of the

⁴ About Us – Steps toward sustainability. *The Natural Step*. 20 May 2011. <<http://www.naturalstep.org/en/about-us>>.

⁵ Our Approach. *The Natural Step*. 20 May 2011. <<http://www.naturalstep.org/en/our-approach>>.

spout continually shrinks, illustrating the increasing difficulty and costs of achieving sustainability the longer society delays an effective response.

The funnel concept helps people understand the sustainability challenge as the need to begin acting now to avoid “hitting the walls” of the funnel. The rising risks of hitting the walls of the funnel as time passes take many forms, including the following forms:

- increasing production costs;
- economic supply/production disruptions, even collapse of individual markets;
- secondary round, economic multiplier effects of a disruptions, such as increasing unemployment;
- increasing government regulation;
- increased environmentally-caused health conditions, disease, and deaths;
- the normalization of extreme weather;
- dramatic changes in hydrologic regimes--decrease in rainfall in some regions, increase in others;
- accelerating occurrence of natural disasters and associated destruction of capital and investment capacity;
- agricultural crop and systems failure;
- failing States (countries, as in)
- and a host of unpredictable conditions related to extreme ecosystem disruption.

An effective response involves buying time by substantially decreasing absolute resource use and associated impacts through radically increasing resource productivity and by increasing ecosystem resources and services by restoring and expanding the biosphere’s regenerative life support capacity through reinvestment in natural capital. It also involves shifting to a closed-loop production/consumption (or “use”) system that continually re-uses existing resources (from cradle to cradle) and fully insulates the biosphere from toxic and non-biodegradable substances.

Continual socio-economic-environmental innovation to eliminate violations of the four sustainability principles, and ultimately to have net-positive regenerative effects as the human economy increasingly incorporates the time-honored and enduring ecological-economic principles of regenerative life support systems.

Another distinguishing component of the FSSD is the use of “backcasting” instead of forecasting as the planning process for making decisions that drive towards a vision of success produced without violating the sustainability principles. It is about beginning with the end in mind. This requires working with others to develop a shared sense of purpose, language, and understanding of success, and then striving to reach that outcome. Backcasting stands in contrast to forecasting, which projects unwanted conditions of the present into the future and then develops work-around solutions to adjust, accommodate, and adapt. In contrast, backcasting is a collaborative effort to

create a desired future. As an added benefit, the higher motivational effect for collaborative action of backcasting is obvious.

One level of the 5-level framework is the “success” level. For the sustainability of human society in the biosphere, success results from not violating a minimum set of four first-order principles as follows:

In a sustainable society, nature is not subject to:

1. systematically increasing concentrations of substances extracted from the earth’s crust
2. systematically increasing concentrations of substances produced by society
3. systematically increasing degradation by physical means
4. and in that society, people are not subject to conditions that systematically undermine their capacity to meet their needs.

The systematic violation of any one of which leads to unsustainability. These four conditions frame the sustainable from the unsustainable in action and method.

Individuals, organizations, businesses, and communities can use the system conditions as goals, as a compass, to navigate towards sustainability. Taking the system conditions and turning in them into goals for use by any actor as follows:

Reduce and eventually eliminate our contribution to the systematic accumulation of materials from the earth’s crust

1. Reduce and eliminate our contribution to the systematic accumulation of substances produced by society
2. Reduce and eliminate our contribution to the ongoing physical degradation of nature
3. Reduce and eliminate our contribution to conditions that systematically undermine people’s ability to meet their basic needs

TNS provides a strategic planning method, sometimes referred to as the *ABCD* Sustainability Game, which helps us apply and use these powerful principles effectively in the complex system of human society in the biosphere in four simple steps for the individual, business, or community:

- **A**wareness – Build awareness (understanding) of sustainability and develop a common understanding about the concept in your organization to enable effective communication and collaboration.
- **B**aseline – Understand the starting point, e.g., where you are now, in terms of system conditions violations.
- **C**ompelling Vision – What you want to work towards, to create, and doing so without violating the four sustainability principles

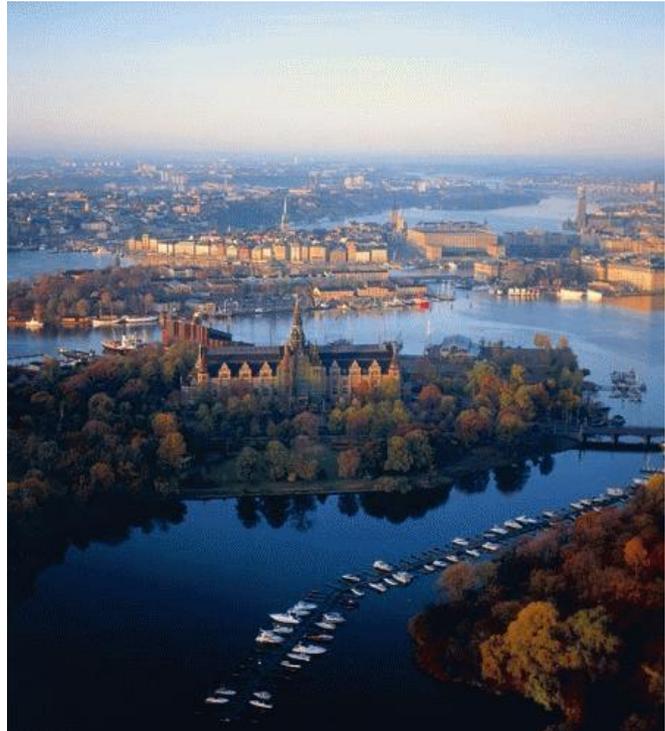
- **D**own to Action – Brainstorm, filter, and prioritize strategies and actions that will bridge the gap between your baseline violations and achieving your compelling vision, your desired future state that is also sustainable.⁶

⁶*The Natural Step*. Integrated Sustainability Planning: A Guide. 2009.

III. BENCHMARK CASES

“Setting an example is not the main means of influencing others; it is the only means.” - Albert Einstein

Underlying principles of sustainability are often difficult to understand. Sometimes this is due to the complexities inherent in nature such as understanding complex systems and vocabulary. Occasionally, broad definitions of sustainability can produce large gaps in understanding important concepts of sustainable systems. To determine what information is missing from the sustainability dialog and to gain a more comprehensive knowledge of sustainability practices, it was necessary to examine several benchmark cases. The benchmark cases we selected came from suggestions by the client and from cities using the framework of The Natural Step model. By examining the policies, programs, and implementation strategies of these cities, we can gain valuable information regarding the level of success in strategic planning for sustainable cities.



In summary, we learned . . .

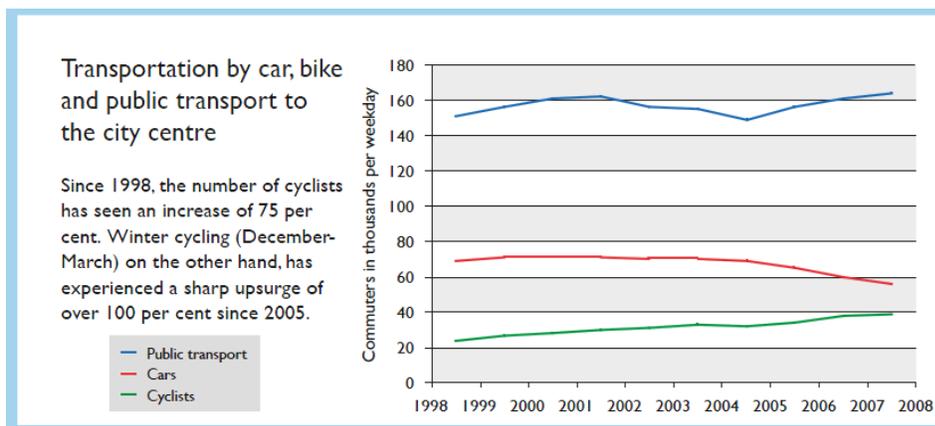
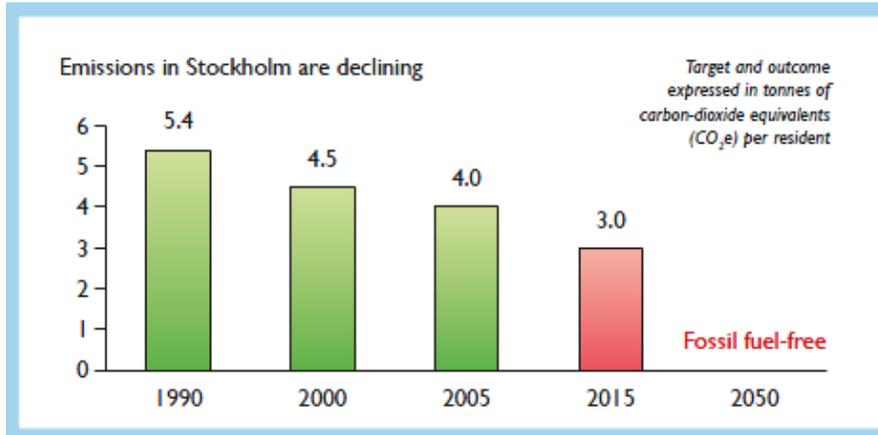
STOCKHOLM, SWEDEN

Stockholm, the capital of Sweden, is located in the middle of Scandinavia, recognized as the center for business and cultural life in Scandinavia. The City is considered a green, clean, and friendly city, located on the shores of the Baltic Sea. It had a population of 837,031, making up more than one fifth of Sweden’s total population in 2010. The total area of Stockholm is 209 square km (21 of which is water).

In 2010, the City won the European Green Capital Award for having one of the cleanest environments out of all the capitals in Europe. It has been called “Green City” for its abundant open space in proximity to the City and within it (the City has about 1,000 parks). Even the water apparently is clean enough to eat the fish that is caught in the city center. Other notable areas of success are in its transportation system, climate protection initiatives, its clean tech, green building, etc. In addition, the City has goal to be fossil fuel free by 2050. Progress has been made towards this

goal. Car trips have been declining (see graphs below). In 2010, 40 percent of cars sold in Stockholm are clean vehicles, 68 percent of all trips within the city center made by walking or biking, and 78 percent of trips to the city center are made by taking public transportation.⁷

THE STOCKHOLM ENVIRONMENT PROGRAM



Stockholm's Environment Program highlights the City's six environmental goals:

1. Environmentally efficient transport
2. Goods and buildings free of dangerous substances
3. Sustainable energy use
4. Sustainable use of land and water
5. Waste treatment with minimal environmental impact
1. A healthy indoor environment⁸

⁷ European Green Capital 2010. Web. 20 May 2011. <<http://international.stockholm.se/Stockholm-by-theme/European-Green-Capital/>>.

⁸ "A Sustainable City - International.stockholm.se." *Start Page - International.stockholm.se*. Web. 22 May 2011. <<http://international.stockholm.se/Stockholm-by-theme/A-sustainable-city/>>.

STOCKHOLM'S ECO-DISTRICT

The residential neighborhood or the City's eco-district, Hammarby Sjöstad, is a good example of a sustainability planning. It was planned in the 1990's, and it reuses waste, water, and sewage to help supply energy to residents. It imposes tough requirements on buildings, technical installations and on traffic. The community has adopted the Hammarby Model or an eco-cycle (see illustration below). This model shows how energy, waste, sewage, and water for housing and offices are handled to reduce energy consumption and waste and encourage reuse and recycling (for example, waste is used to heat up the housing)

The community has environmental goals:

- Land usage: sanitary redevelopment, reuse and transform brownfields into attractive residential neighborhoods
- Energy: renewable fuels, biogas products and reuse of waste heat and energy efficiency practices
- Water and sewage: clean and efficient input and output
- Waste: separated thoroughly, with maximization material and energy recycling
- Transportation: fast, attractive public transport, bicycle paths, and carpool, and reduced private car usage
- Building materials: healthy, dry and environmentally sound⁹

⁹ *Hammarby Sjöstad*. Web. 22 May 2011. <http://www.hammarbysjostad.se/>

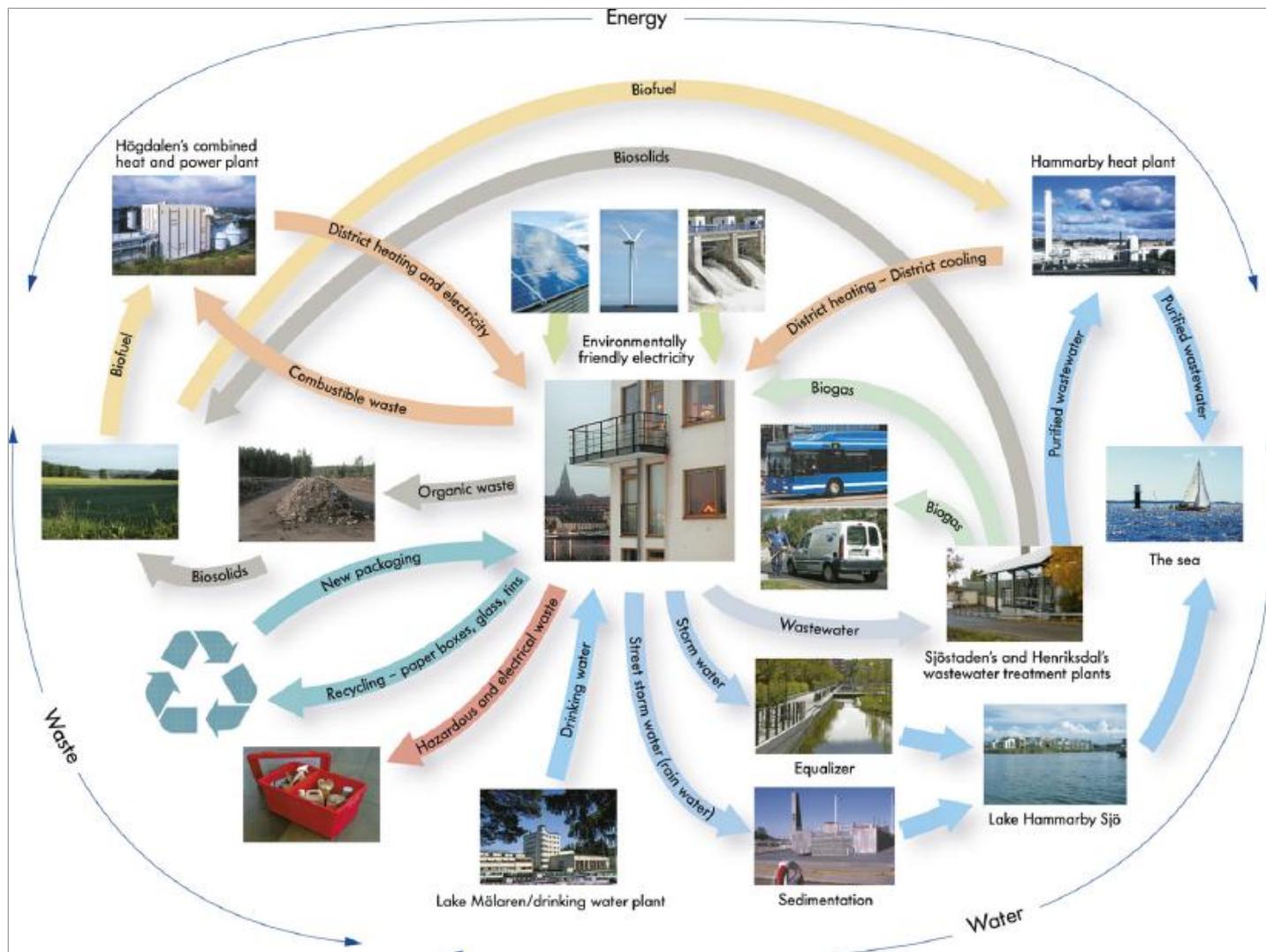


FIGURE X – xxx diagram

Source: <http://www.hammarbysjostad.se/>

MELBOURNE, AUSTRALIA

Melbourne's city centre covers 37.6sq km and has a residential population of about 89,759. The entire Melbourne metropolitan area covers 7,694 sq km and has a population of around 3.9 million (see map below).¹⁰ Around 771,000 people travel to the City daily, and Melbourne hosts over a million international visitors each year.



MELBOURNE'S SUSTAINABILITY GOALS

According to the recent articles, Melbourne hopes to set new records by becoming one of the world's most sustainable cities by 2020.

Below are articles on what others are saying about Melbourne's efforts:

- <http://www.socialearth.org/sustainable-nye-city-4-melbourne-australia>
- http://ecogeneration.com.au/news/future_melbourne_-_making_melbourne_sustainable/002058/
- <http://www.citiesforpeople.net/melbourne-principles-for-sustainable-cities>

Melbourne's 10 sustainability principles provide a framework for cooperation at various levels and for engaging communities in creating sustainable cities. The principles were developed at an international UNEP workshop in Melbourne in 2002.¹¹

The 10 principles:

1. Provide a long-term vision for cities based on: sustainability; intergenerational, social, economic, and political equity; and their individuality.
2. Achieve long-term economic and social security.
3. Recognize the intrinsic value of biodiversity and natural ecosystems, and protect and restore them.
4. Enable communities to minimize their ecological footprint.
5. Build on the characteristics of ecosystems in the development and nurturing of healthy and sustainable cities.

¹⁰ "Redirect Notice." *Google*. Web. 22 May 2011.

<http://www.google.com/url?q=http://www.melbourne.vic.gov.au/AboutMelbourne/MelbourneProfile/Pages/CityofMelbourneprofile.aspx>.

¹¹ Fisher, Richard. "Melbourne Principles: Respect for People and Nature." *Sustainable Cities*. Web. 22 May 2011.

<http://sustainablecities.dk/en/actions/a-paradigm-in-progress/melbourne-principles-respect-for-people-and-nature>.

6. Recognize and build on the distinctive characteristics of cities, including their human and cultural values, history, and natural systems.
7. Empower people and foster participation.
8. Expand and enable cooperative networks to work towards a common, sustainable future.
9. Promote sustainable production and consumption, through appropriate use of environmentally sound technologies and effective demand management.
10. Enable continual improvement, based on accountability, transparency, and good governance.¹²

Melbourne's long-term plan, Future Melbourne, was developed through open and ongoing public participation. Over the one-year period, over 15,000 individuals, businesses, organizations and community groups from across the City and the world were part of the creation of this extensive plan. Future Melbourne is to be achieved by six goals:

1. A city for people
2. A prosperous city
3. An eco-city
4. A knowledge city
5. A creative city
6. A connected city¹³

For these goals, Future Melbourne includes 150 ambitious targets to measure the city's progress. It has a target of zero greenhouse gas emissions by 2020. Other 2020 goals include the City's aim to be the leader in waste management and sustainable consumption, to have recycling solutions for almost all household items for residents in the City, to be one of the world's most sustainable working cities (promoting environmental friendly practices for local business), and it will be Australia's premier sustainable tourism and visitor destination.¹⁴

- Future [Melbourne](#)
- Go to the [government website](#) to see more about what the City is doing.

¹² *International Environmental Technology Center*. Melbourne Principles for Sustainable Cities.

¹³ *City of Melbourne*. Future Melbourne. Web. 19 May 2011.
<http://www.melbourne.vic.gov.au/AboutCouncil/PlansandPublications/Pages/FutureMelbourne.aspx>.

¹⁴ *City of Melbourne*. Reducing waste. Web. 19 May 2011.
 <<http://www.melbourne.vic.gov.au/Environment/WhatCouncilisDoing/Pages/ReducingWaste.aspx>>.

WHISTLER, CANADA

DEMOGRAPHIC INFORMATION¹⁵

- **Population:** 10,228 permanent population, overnight per day average usage is 24,380
- **Age:** median 32 years old (57% between 20-44 years)
- **Marital status:** 57% single 33% married
- **Median income:** \$29,997
- **Households:** 1person and non-family households 54.2%
- **Ethnicity:** unknown
- **Area:** 62.4 Square miles

THE WHISTLER2020 PLAN

FOUR PHASES

Adopted over three years of consultation and community collaboration in 2005. Plan created by the community, Official Community Plan (OCP)

- Phase 1. 'Success factors' identified
- Phase 2. Five alternative futures were assessed and explored by the community
- Phase 3. Involved envisioning a preferred future and developing the draft plan with the involvement of 16 community task forces.
- Phase 4. The preferred future was transformed into the Whistler2020 vision, and the sixteen strategies were completed with ongoing action planning by the strategy taskforces and on the ground implementation through the involvement and commitment of a broad spectrum of implementing organizations throughout the community.

MANAGEMENT

The Resource Municipality of Whistler (RMOW) manages the Whistler2020 Team, but the creativity, direction, and execution of the plan is a product of Whistler2020 partners, community taskforces, and organizations and businesses.

Whistler 2020 Team-based in Whistler Center for Sustainability –an NGO that provides community planning and implementation services to local governments

¹⁵ <http://www.whistler2020.ca/whistler/site/genericPage.acds?instanceid=2985334&context=2985223>

WHISTLER FRAMEWORK

“Whistler: It’s our Future” to Dec. 2004 “Whistler2020-moving toward a sustainable future” Integrated Community Sustainability Plan (ICSP) based on TNC the first CSP/ICSP to use The Nature Step Framework from beginning

http://www.naturalstepusa.org/storage/case-studies/Whistler_TNScasestudy.pdf

http://www.wisconsinplanners.org/attachments/Whistler_2020_overview%5B1%5D.pdf

THE VISION

Foresees itself as “The premier mountain resort community –as we move toward sustainability” (7)

Five priorities +Seventeen strategic areas

1. Enriching community life
2. Enhancing the resort experience
3. Protecting the environment
4. Ensuring economic vitality
5. Partnering for success

Each strategy has a taskforce comprised of local experts in the strategy area, organizations and businesses likely to be involved in the implementation of the task, other stakeholders (senior, families, businesses), and a municipal staff team that facilitates the process.

Examples: In-fill housing guidelines, bio-diesel in all municipal vehicles, geothermal heating system in community hall and fire dept., landfill methane capture, pilot solar powered garbage compactors, master calendar for cultural events, needs assessment report for housing, expansion of adopt-a youth program.

VISION AND GOALS FOR 2020

- Growth limits 6,650 resident housing bed units allocated
- Confine growth to specific area, this will help reduce greenhouse gasses and highway congestion
- Enable 75% of employees reside in Whistler, reduce employee commutes
- Recreation and playing fields developed on landfill sites-help avoid further ecological development
- “Whistler Green” new green building LEED standard

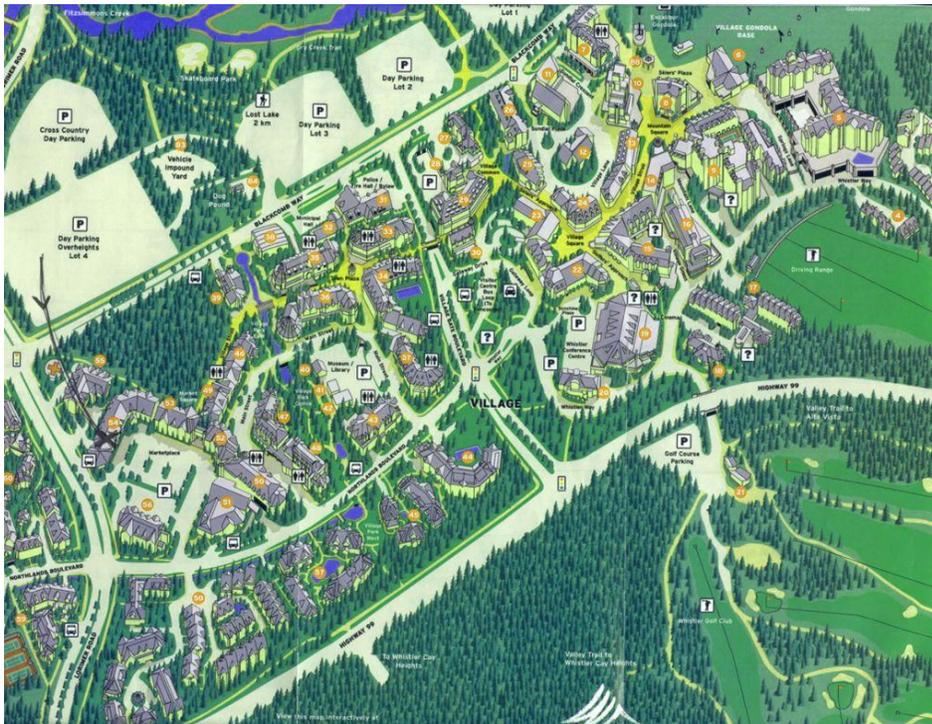
PROGRESS

Exceptional [Interactive website](#) with information up to 2008

III. Benchmark Cases

Additional Information

- Green [building LEED](#)
- [Landfill waste](#)
- Whistler2020 plan [Vol. 1](#)



SONOMA MOUNTAIN VILLAGE

Sonoma Mountain Village is located in Rohnert Park, California. It is a 200 acre, mixed used, zero waste and solar powered community, supposedly to be one of the greenest neighborhoods in the world. The project will be built out/completed in 2025.¹⁶ The project is one of the first in North America to be endorsed by the One Planet Communities program, which aims to help build communities with reduced ecological footprint. The Village's Sustainability Action Plan will help the neighborhood meet sustainable goals of One Planet Communities. One Planet principles include:

1. Zero carbon – 100% of power coming from renewable energy by 2020 for building energy
2. Zero waste – 98% reduction in solid landfill waste
3. Sustainable transport – 82% reduction in carbon dioxide through alternative transport options
4. Sustainable materials – 20% of materials manufactured on-site and 40% manufactured within 500 miles
5. Local and sustainable food – 65% of food within 300 miles
6. Sustainable water – 0% increase in existing water allocation granted to previous site owner
7. Land use and wildlife – 27 acres of parks and open space
8. Culture and heritage
9. Equity and local economy – 25% affordable housing and the creation of 4,400 jobs
10. Health and happiness – 5-minute lifestyle (walkable neighborhood)¹⁷



¹⁶ <http://www.sonomamountainvillage.com/community/vision.php>

¹⁷ <http://www.sonomamountainvillage.com/community/one-planet-principles.php>

IV. INNOVATIVE CASE STUDIES: NORTHERN SECTION

The following exemplary cases highlight innovative sustainability practices throughout the Northern Section. Each innovative case contains key elements or components that fall within the guidelines of the TNS, Jepson's Fourteen Development Principles, Neef's Nine Human Needs, and other ICSP frameworks pertaining to sustainability planning. **By selecting diverse plans, we hope to accurately demonstrate the leading edge of sustainability planning in the Northern Section.** While searching the Northern Section we found green building, mixed-use, transit-oriented planning as well as climate change programs and other policies geared towards sustainability. Additional plans, policies, and programs can be found in the inventory database that is located in the appendix.

MARIN COUNTYWIDE PLAN

The Countywide Plan was first adopted in 1972 revised twice before its most recent update in 2007. Although it is required by the state of California that every city and county produce a General Plan, the County's general plan goes beyond the requirements of a typical General Plan. In addition to the required elements (Community Development, Safety, Conservation and Open Space, Housing, Noise, and Transportation), the County has adopted a plan that additionally covers a wide range of areas some of which are agriculture, public facilities and services, community participation, environmental justice, arts and culture, education, and diversity.¹⁸ Many consider the plan innovative, as it promotes leading edge strategies and serves as a model for other communities in addressing the issue of climate change.¹⁹ It is themed around planning sustainable communities. Its goals are based on the values and

"We cannot direct the wind, but we can adjust the sails." — Anonymous



¹⁸ "Community Development Agency - Countywide Plan." *County Of Marin*. Web. 16 May 2011. <<http://www.co.marin.ca.us/depts/CD/main/comdev/ADVANCE/cwp/index.cfm>>.

¹⁹ "Community Development Agency - Future-Marin Homepage." *County Of Marin*. Web. 16 May 2011. <<http://www.co.marin.ca.us/depts/cd/main/fm/index.cfm>>.

desired outcomes of the Marin community drawn from various meetings and workshops. The policies and programs in the Plan are meant to help achieve these following goals (although it is noted in the Plan that these goals not measurable quantitatively and are not time bound):

- A preserved and restored natural environment
- A sustainable agricultural community
- A high-quality built environment
- More-affordable housing
- Less traffic congestion
- A vibrant economy
- A reduced ecological footprint
- Collaboration and partnerships
- A healthy and safe lifestyle
- A creative, diverse and just community
- A community safe from climate change²⁰

The Marin Countywide Plan is the County’s long-range guide for use of land and protection of natural resources. The map below shows how the plan divides up the 606 square miles of Marin into four distinct corridors, the Coastal corridor, the Inland Rural Corridor, the City-Centered Corridor, and the Baylands Corridor. The designation of these environmental corridors helps provide a framework for where future development should be increased or reduced or limited in the County.

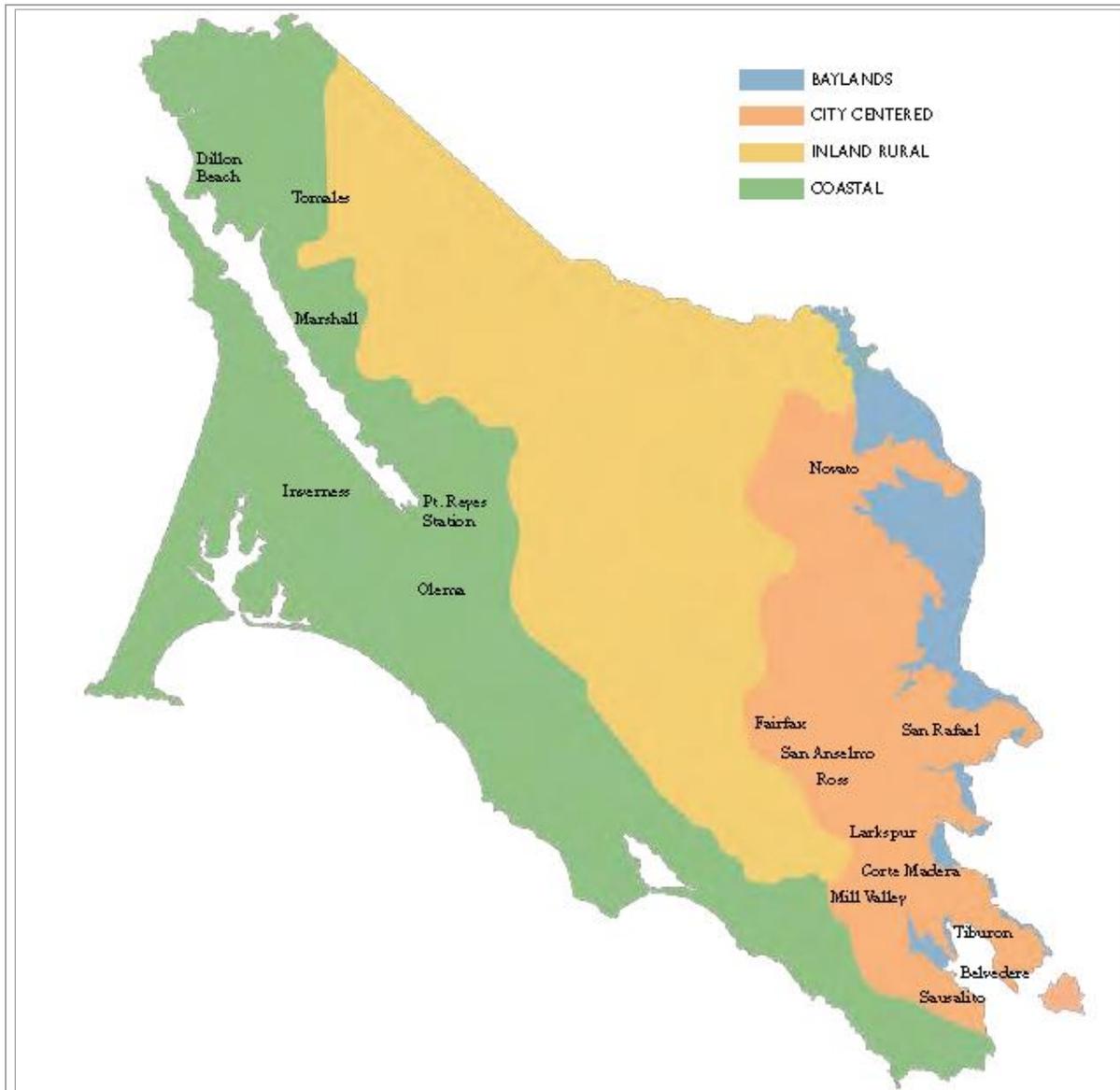
ORGANIZATION OF THE PLAN

The Plan consists of three general sections, which includes the natural systems and agriculture element, the built environment element, and the socioeconomic element. Each of these main elements covers the questions: What are the desired outcomes? Why is this important? How will results be achieved? How will success be measured?

The Plan is long and comprehensive, and it covers a range of issues such as reducing greenhouse gases emissions, protecting open space, preserving agricultural lands, guiding potential development, providing housing, encouraging green building practices, sustaining the economy, protecting public health, providing necessary services, and promoting the safety and well-being of residents. However, many of the desired outcomes and methods of achieving those outcomes are vague and do not tell us where the County stands in reaching those goals and when it is that those have those goals been met.

²⁰ Marin Countywide Plan. 2007. *County of Marin*.

Figure X -- Map of Four Environmental Corridors



Source: Marin Countywide Plan, 2007

UNDERSTANDING MARIN’S PROGRESS TOWARDS REACHING ITS GOALS

To answer the question of where the County is in terms of meeting its goals towards planning sustainable communities, the County has indicators, benchmarks, and targets that tell us whether the county is moving forward in achieving those goals and policies in the Plan. The tables below show what the County’s specific indicators, benchmarks and targets are (table 1), and generally what the County is succeeding at and where it needs more work (table 2).

The County has come up with a unique method of measuring tracking its progress towards implementation of the Plan. The County’s “see-it” website (<http://marin.visiblestrategies.com/>) displays the Countywide Plan’s general topic areas and evaluates how well the County is meeting those areas by applying a score system of 1 to 10 (10 being the highest score and 1 being the lowest). Once clicking on an area, it is broken down into subtopics, which also have scores associated with it. The specific target areas (each also given a score) then follow these subtopics. Choosing a specific target area will reveal the objective and progress.

WHY WE CHOSE MARIN’S COUNTYWIDE PLAN

The County uses the term “planning sustainable communities” throughout the plan. Reviewing the Countywide Plan would give insight on what the County considers “sustainable communities.” The Plan is a long document and is extensive in the concerns and topics it addresses. It does not only focus on environmental concerns, which tends to be the case when trying to find sustainable programs or plans of other local governments in the Northern Section. The Plan brings together the environmental and the social, giving a broader definition of what a sustainable community is.

The County has set indicators, benchmarks, and targets for a wide range of issues. This makes it possible to track the County’s progress in meeting its targets. As mentioned above, the County has come with up a creative method of showing how far the Marin community currently is from reaching its targets. However, it is questionable whether some of these targets are ambitious, as some state “no decrease or no increase” meaning targets have not been set high. If targets are not set high, then achieving them is not as meaningful.

Table 1		
Marin Countywide Plan – Innovation for Sustainability		
Indicator	Benchmark	Target
The Natural Systems and Agricultural Element		
Number of identified northern spotted owls	75 pairs in 2000	NO decrease in the number of owls identified
Water Quality- standard industry measure – beneficial water uses	16 beneficial uses in 2004	No decline in water quality through 2015
Number of days of poor air quality per federal and state guidelines	No exceedances in 2000	No increase through 2015
Amount of greenhouse gas emissions countywide	3,005,674 tons CO2 in 1990 and 3,252,049 in 2000	Reduce 15% by 2015
Amount of greenhouse gas emissions from County	16,857 tons CO2 in 1990	Reduce 15%–20% by 2015

Table 1
Marin Countywide Plan – Innovation for Sustainability

Indicator	Benchmark	Target
government sources		
Percentage of land preserved	48% (159,744 acres) in protected open space, watershed, or park and in 2000	Increase land preserved by 5% (add 16,640 acres) by 2010 and 7% (add 23,296 acres) by 2015
Miles of trails in Marin County	641 miles in 2004	Maintain and increase
Acres preserved with agricultural easements	28,377 acres preserved in 2000	Increase by 25,000 acres by 2010 and by 12,500 additional acres by 2015
Acres of land farmed organically	357 acres in 2000	Increase by 1,500% by 2010 and 1,700% by 2015
Annual sales at Marin farmers' markets	\$9,860,000 in 2005	Increase annual sales 10% by 2010 and 15% by 2015
The Built Environment Element		
Number of dwelling units within ½ mile of a transit stop	82,773 dwelling units	89,997 dwelling units
Energy use per capita countywide	16,636 kWh unincorporated per capita in 2000	Reduce consumption of electricity per capita 10% by 2020
Total megawatts of photovoltaic systems installed countywide	0.0255 MW in 2000	15 MW by 2015 and 30 MW by 2020
Total megawatts of photovoltaic systems installed by County government	0 MW in 2000	0.5 MW by 2010 and 1 MW by 2015
Regional fair share housing allocation	Met in 2000	Meet regional fair share allocation in 2010 and 2015
Jobs-housing balance countywide	1.22 workers per household in 2000	Reach and maintain a 1.3-employed-resident-workers-to-total-jobs ratio through 2015
Number of employees who live and work in Marin	61% in 2000	No decrease
Number of vehicles with a fuel economy of at least 45 miles per gallon countywide	362 in 2002	Increase the number of zero and partial zero emission vehicles with a fuel economy of at least 45 mpg through 2020

Table 1
Marin Countywide Plan – Innovation for Sustainability

Indicator	Benchmark	Target
Vehicle miles traveled overall countywide (VMT)	2,764 million VMT in 2000	No or minimal increase through 2015
Miles of class I and II bicycle pathways in unincorporated areas	3.5 miles of class I in 2000 and 2.25 miles of class II in 2000	Increase to 4.5–10 miles by 2010 and 9–25 miles by 2015
Public transportation ridership share of modal split countywide	11% (bus and ferry) in 2000	Increase public transportation ridership by 2015, again by 2020
Per capita use of potable water	299 gallons daily per capita in 2000	No increase through 2020
Per capita use of non-potable water for appropriate end use	5 gallons daily per capita in 2000	Increase through 2020
Percent of solid waste diverted from landfills	Diversion rate was 65% in 2000	Increase diversion rate to 75% by 2010 and 80% by 2015
The Socioeconomic Element		
Gross county production in major economic sectors	10.5% in 2000	Increase 10% by 2020
Number of certified green businesses	0 in 2000	Increase to 250 by 2010 and 400 by 2015
Unemployment rate by county	3.2% in 2000	Do not increase unemployment rate from benchmark
Child care supply and demand	Demand exceeds supply by 42%	Supply increases until it is within 10% of child care demand by 2015
Survey of public perception of safety in unincorporated areas	89% in 2000 and 88% in 2004	No decrease through 2020
Recidivism (re-offenders) rate	61% recidivism rate	Decrease recidivism rate through 2020
Voter turnout in general elections	84.6% in 2000	No decrease through 2020
Amount of solid waste exported from Marin County annually	216,211 tons in 2000	No increase through 2020

Table 1 Marin Countywide Plan – Innovation for Sustainability		
Indicator	Benchmark	Target
Number of servings of fruits and vegetables consumed daily by children	53% of children ate five or more servings of fruits and vegetables per day	Increase 10% by 2020
Percentage of population overweight and obese by age and gender	15% as of 2003 for adults over the age of 18	Decrease 10% by 2020
Number of artists participating in the fine arts exhibitions at the Marin County Fair	1,210 artists participated in 2000	Increase 20% by 2015 and 30% by 2020
Parks in County government jurisdiction in acres	459 acres in 2000	Acquire 40 acres by 2010 and develop 10 acres; acquire an additional 40 acres by 2015 and develop 20 acres

Table 2 Marin Countywide Plan – Performance Status (2009)		
Clear Progress	Moderate Performance	Improvement Areas
Agriculture Arts and culture Biological Resources Energy and Green Building Food Open Space Public Facilities and Services Public Health Public Safety	Economy Education Transportation	Climate Change Housing Child Care
<i>Source:</i> County of Marin, 2009.		

PALO ALTO

Palo Alto is a community of about 61,200 residents, located by Stanford University.²¹ The City has been taking numerous steps towards addressing environmental concerns. The City has taken the lead in implementing various sustainable policies and has approved various programs and ordinances in the last few years. The City's PaloAltoGreen, a voluntary green energy purchasing program is ranked the number-one renewable energy program in the U.S. The City adopted a Climate Protection Plan (CCP) in 2007, which establishes a citywide target of reducing emissions by 15 % of 2005 levels by 2020. In 2008, the City Council approved its Green Building Ordinance. It required that all non-residential construction greater than 500 square feet and some renovation projects meet LEED rating system, and all residential new construction greater than 1,250 square feet and renovations valued more than \$75, 0000 to meet the Build It Green rating system.²² In addition, in 2008, Council approved an energy efficiency ordinance that requires new residential and nonresidential projects.²³ There has been a significant amount of attention put towards restoration and pollution prevention programs. Notable efforts have been made in bringing Palo Alto closer to its goal of becoming a zero waste community and encouraging community participation to help reach that target.

ZERO WASTE BY 2021 (NO WASTE TO LANDFILLS)

In 2004, Palo Alto was at a 62 percent waste diversion rate. By 2005, the City went beyond the requirements of AB 939 and established a short term and long-term target of 73 percent diversion by 2011 and 100 percent diversion, eliminating materials sent to landfills, by 2021.²⁴

As recognized by Palo Alto, zero waste:

- Recognizes that waste is not inevitable
- Discarded materials are potentially valuable resources
- Goes beyond “end of pipe” strategies
- Maximizes recycling and composting
- Reduces consumption
- Designs “waste” out of the system
- Requires participation by the whole community²⁵

²¹ *About Palo Alto*. Web. 14 May 2011.

<<http://www.cityofpaloalto.org/visiting/news/details.asp?NewsID=708&TargetID=52>>

²² City of Palo Alto. Ordinance No. 5006.

²³ City of Palo Alto. Ordinance No. 5070.

²⁴ City of Palo Alto. *Zero Waste Operational Plan*. 2007.

Achieving zero waste will not be easy for Palo Alto. The City faces challenges in reaching its goal, as noted in its Operational Plan. For example, product design and manufacturing is beyond the City's control, yet there is increasing waste that cannot be recycled or reused from products that were not designed with its end-of-life management in mind. Cooperation with neighboring cities like Sunnyvale and Mountain View is needed in order to increase diversion. The City also has to rely on the public to take responsibility and separate recyclable or compostable materials that allows those materials to be captured for processing, and then diverted from disposal.

The City has numerous programs and resources that contribute to assisting the City with becoming a zero waste community. Palo Alto has implemented various outreach programs like green building workshops and tours, sale events, community and business recycler newsletters, school and education programs, and backyard and composting classes. There are some interesting programs worth mentioning. The Bring Your Own Bag Program aims to increase reusable bag use. Since 2009, the City placed restrictions on single-use plastic bags from large grocery stores. The City is considering expand this restriction to include other stores. It was found that only about 5 percent of those bags were recycled even though the City has been trying to increase recycling of plastic bags for decades.²⁶ Since the last few years, the City participated in programs giving away free reusable bags, working with retailers to encourage and incentivize shoppers to bring reusable bags. Palo Alto has been keeping track of the type of bags shoppers use in large grocery stores and pharmacy stores. There are limits placed on purchases the City makes. Palo Alto's Environmental Purchasing Policy (2008) requires the City to incorporate environmental and social stewardship criteria in its purchases and the formation of a Sustainable Purchasing Committee. The Committee must create plans and perform procedures that promote environmentally preferred purchases.²⁷

The City encourages the formation of "Green Teams." This idea provides opportunities to create networks and take action to implement environmentally friendly practices in place of work/school. The City provides guidelines and offers many suggestions for creating and managing a Green Team and potential projects. Currently there are about 20 schools participating in this program.²⁸ Palo Alto's Zero Waste website is an engaging and useful resource. It offers the chance for the community to learn about waste and put into practice strategies that will help make the City a zero waste community. The website posts useful information that helps residents figure out what to do with unwanted items and how to reduce waste. The website provides information on why reducing junk mail is important and how to do it, where to go to get rewards for using reusable bags, and a "recyclopedia" that directs people to locations for leaving their unwanted items. In addition, interactive games are found on the website to make learning about zero waste attractive and fun.

²⁵ "City of Palo Alto Website - Zero Waste Home Page." *City of Palo Alto Website - Home Page*. Web. 19 May 2011. <http://www.cityofpaloalto.org/depts/pwd/zero_waste/>.

²⁶ "City of Palo Alto Website – Plastic Bag Restrictions" *City of Palo Alto Website Environment Page*. Web. 19 May 2011. <<http://www.cityofpaloalto.org/environment/news/details.asp?NewsID=1024&TargetID=59>>

²⁷ *City of Palo Alto*. Palo Alto Environmental Purchasing Policy. 2008.

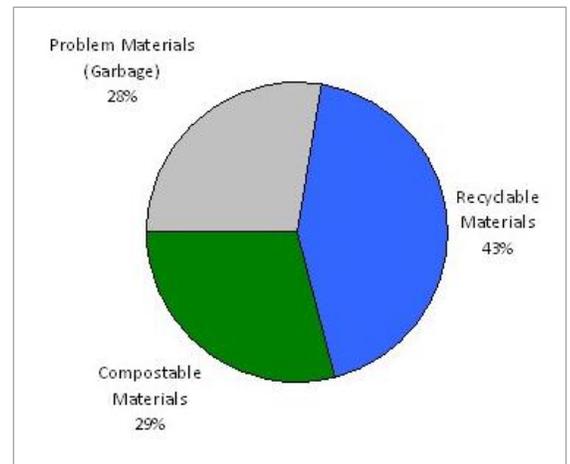
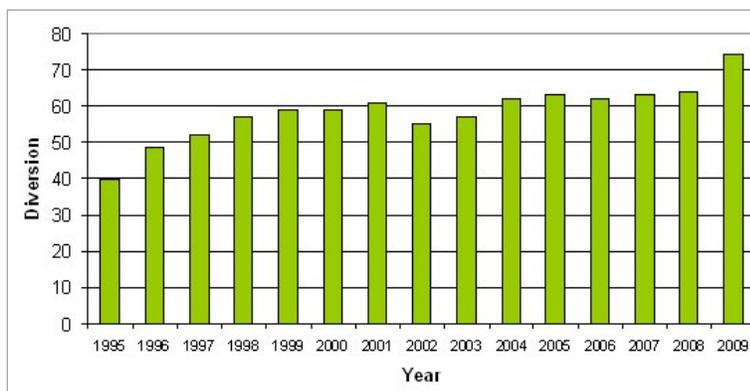
²⁸ "City of Palo Alto Website - Green Teams." *City of Palo Alto Website - Home Page*. Web. 19 May 2011. <http://www.cityofpaloalto.org/depts/pwd/zero_waste/resources/green_teams.asp>.

WHY DID WE CHOOSE PALO ALTO?

Just within a year from 2008 to 2009, Palo Alto increased its waste diversion rate by 10 percent). Even with this achievement, the Palo Alto community still has room to improve. 43 percent of materials that were recyclable were thrown in the garbage (see images below). Palo Alto is now working on its new recycling and waste ordinance to restrict recyclables and compostables from being placed in the garbage.

It was to our surprise that Palo Alto has put effort in addressing environmental problems. Environmental sustainability and land use and transportation were on the top five priorities of the City Council for fiscal year 2011. The City’s zero waste goal is just one area we chose to focus on. There were multiple programs created that contributed to meeting this goal. Many of them we found interesting and creative. However, the City has not managed to come up with one cohesive framework to move forward towards becoming a sustainable community. The City’s Climate Action Plan touches on different areas, but lead ultimately to overall goal of reducing greenhouse gas emissions, and Palo Alto's sustainability policy is more of just recognition of sustainability (as the three E’s) and its intent to be a sustainable community. Although the City has made it clear it aims for zero waste 2021, other targets have not been established that provide us an idea of how the community is progressing towards a sustainable community. We found many other smaller cities in the Northern Section like Palo Alto, where they recognize sustainability and define what it means to them, yet no broader framework, and specific implementation strategies or targets have been established around aiming to be sustainable. Nonetheless, Palo Alto offers us an example of a City that has made efforts worth mentioning towards certain areas that support the overall concept of sustainability.

DIVERSION RATE



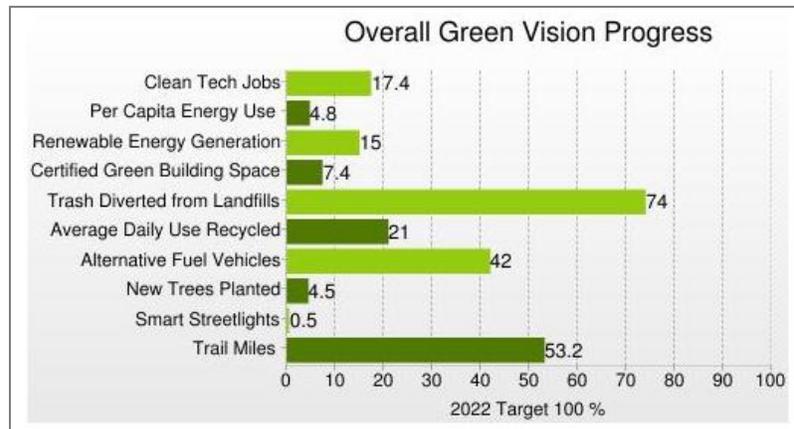
Source: **Palo Alto’s Garbage Composition** – items found in garbage (not recycling)

SAN JOSE GREEN VISION

San Jose is the largest city in the Bay Area, the 3rd largest city in California, and the 10th largest in the US located about 50 miles south of San Francisco. In 2010, the population estimate was 1,023,000. San Jose is recognized for its largest concentration of technology expertise in the world, with over 5,600 tech companies employing over 240,000 people.²⁹ The City calls itself the Capital of Silicon Valley. Just within the last year, the City has won numerous awards, highlighting its efforts in becoming a leader in addressing environmental concerns.³⁰ In October 2007, San Jose adopted the Green Vision with ten ambitious goals to be achieved by 2022. As stated on the City's website, the Vision will transform the City into the world center of clean technology innovation, encouraging leading-edge sustainable practices, and demonstrating how economic growth, environmental stewardship, and fiscal responsibility are closely linked.³¹

The ten Green Vision Goals include:

1. Create 25,000 clean tech jobs
2. Reduce per capita energy use by 50 percent
3. Receive 100 percent of the City's electrical power from clean renewable sources
4. Build or retrofit 50 million square feet of green buildings (LEED certified)
5. Divert 100 percent of the waste from our landfill and convert waste to energy
6. Recycle or reuse 100 percent of our wastewater (100 million gallons per day)
7. Adopt a General Plan with measurable standards for sustainable development
8. Have 100 percent of public fleet vehicles run on alternative fuels
9. Plant 100,000 new trees and replace street lighting with zero-emission lighting
10. Create 100 miles of interconnected trails³²



The City has a strategic framework that helps link specific targets, implementation, and project level efforts at the project level to the broader outcomes of becoming an environmental leader, improving quality of life, promoting economic growth and opportunity. The framework is based on these areas:

²⁹ City of San Jose. Web. 14 May 2011. <http://www.sanjoseca.gov/about.asp>.

³⁰ "Awards and Accolades." *Green Vision Home*. Web. 14 May 2011. <http://greenvision.sanjoseca.gov/AwardsandAccolades.aspx>.

³¹ "Green Vision Goals." *Green Vision Home*. Web. 14 May 2011. <http://greenvision.sanjoseca.gov/GreenVisionGoals.aspx>.

³² City of San Jose. *Green Vision*. 2007.

- Leading by example
- Advocating policies at the regional, state and federal level
- Financing mechanisms
- Forming strategic partnerships
- Communications and engagement

Under these five areas, the City has developed a work plan to help move the City towards achieving the ten Green Vision Goals.

TRACKING PROGRESS

In 2010, San Jose released an annual report, tracking its progress on the Green Vision Goals. As seen in the table to the right, the City has a long way to go in meeting many of its targets. However, it should be noted that the City has made significant accomplishments towards fulfilling the Green Vision Goals. Many achievements were mentioned in the 2010 annual report. The City has seen a significant flow of grant funding and key partnerships; it received over \$70 million dollars in grant funding to support Green Vision projects. In September 2010, a completed development of a draft plan for the Envision San Jose 2040 General Plan was posted to the public, incorporating measurable standards for sustainable development and a comprehensive evaluation of those standards.

The City has the highest number of solar

Source: <http://greenvision.sanjoseca.gov/GreenVisionG>

installations in California. Almost 28 MW of total solar has been installed in the City. There have been interesting examples of solar installations. In 2010, the San Jose Airport installed a 1.12 MW solar array on top of its parking structures, and this is estimated to produce about 20% of the parking structures energy usage (see photo on left). Venture capital investment in clean technology totaled over \$5 billion in the last four years, far exceeding other regions in the world. The City has also supported clean tech job opportunities for the youth or disadvantaged populations. The City's Work2future has served over 900 youth, providing work



1.12 MW Solar Installation at San José Airport

Photo From: Green Vision Annual Report 2010

regions

experience programs that connect youth with green employers and future careers in the clean tech industry.³³

San Jose's Green Vision establishes targets that are clear and ambitious. This gives the opportunity to follow up with more measurable efforts the City is taking to address these various areas relating to environmental and social concerns and understand the City's priorities. The Green Vision fosters the City's image as the center of innovation and technology. This image plays out in the City's achievements, implementation strategies, and its goals. The Vision does not just focus on one area or one goal, but encompasses different goals from different areas (transportation, energy, jobs, etc.). In addition, the Green Vision website (<http://greenvision.sanjoseca.gov/>) is attractive and easy to use and understand. It also appears the webpage is consistently updated with recent news and information to keep the public up to date with the Green Vision and the City's green efforts and programs.

THE CITY OF CONCORD

THE CONCORD REUSE PROJECT AREA PLAN

In February 2010, the City of Concord adopted the Concord Reuse Project Area Plan, also known as the Los Medanos Area Plan (see map below for project area boundaries). This plan is a comprehensive reuse plan for the Concord Naval Weapons Station (CNWS) that was decommissioned in 2005 and turned over to the City for development. The Los Medanos Area Plan is part of the City of Concord's 2030 General Plan and is divided into three books.³⁴ The first book contains visions and standards of the CNWS plan, the second contains background surrounding planning and policies, and the third features strategies to reduce climate action impacts associated with the plan.³⁵ Four principle initiatives lead the way to increasing Concord's sustainability goals.³⁶

1. Site wide Development
 - a. Street Orientation
 - b. Solar Exposure
 - c. Green Buildings
 - d. Outdoor Shading

³³ City of San Jose. *Green Vision 2010 Annual Report*. Rep. 2010. Print.

³⁴ "Los Medanos Area Plan Book One: Vision and Standards." *City of Concord General Plan 2030*. Oct. 2010. Web. Apr. 2011.

³⁵ "Los Medanos Area Plan Book Two: Technical Chapters." *City of Concord General Plan 2030*. Oct. 2010. Web. Apr. 2011. http://concordreuseproject.org/pdf/losMedanos2010_book2.pdf.

³⁶ "Los Medanos Area Plan Book Three: Climate Action Plan." *City of Concord General Plan 2030*. Oct. 2010. Web. Apr. 2011. http://concordreuseproject.org/pdf/losMedanos2010_book3.pdf.

2. Sector Based actions for Four Principal Emissions Source

- a. VMT
- b. Building and Site Energy Efficiency
- c. Waste Reduction
- d. Water Efficiency

3. Education and Collaboration

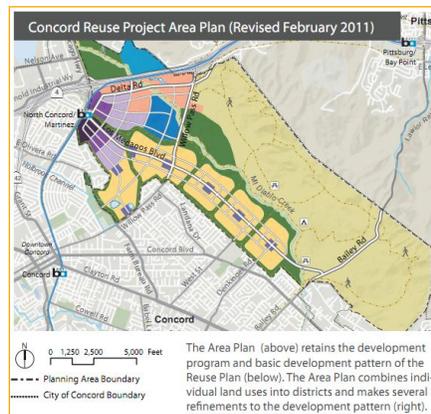
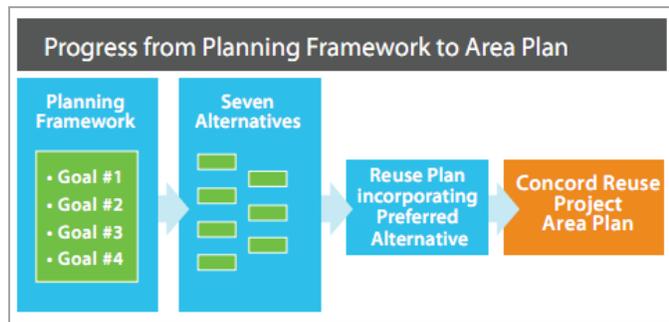
- a. Move Smart
- b. Energy Smart
- c. Water Smart
- d. Waste Smart
- e. Community Smart

4. Implementation and Monitoring

- a. Implementation Responsibility
- b. Flexibility in Implementation
- c. Monitoring Progress

Source: Concord reuse project area plan, 2010

The plan applies the 14 Jepson sustainability principles (discussed in the background report). It features over 2,700 acres of conservation space, 12,200 housing units and can accommodate an additional 26,530 jobs on location. Sustainability features include mixed-use, high-density transit oriented development, solar, and smaller street blocks with narrow streets to increase pedestrian use and calm traffic.



Source: Concord reuse project area plan, 2010

THE CITY OF RICHMOND

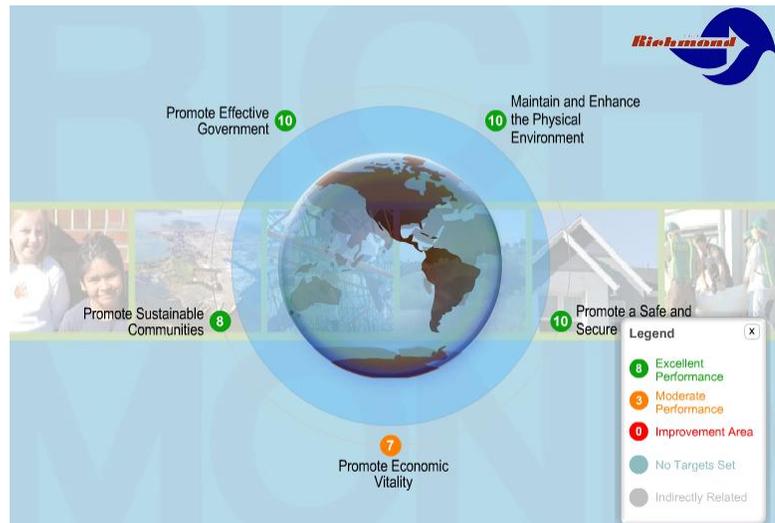
ENERGY AND CLIMATE CHANGE ELEMENT

The City of Richmond has introduced an Energy and Climate Change Element into its General Plan update.³⁷ This innovative approach to energy policy provides a strategic blueprint to address climate change. Goals for the Element were established by analyzing greenhouse gas emissions from land use and transportation networks within Richmond.³⁸

The Energy and Climate Change Element goals include:

1. Energy Conservation
2. Reduction of climate change impacts
3. Renewable energy production and use
4. Responsible community revitalization
5. Sustainable business development

Specific policies and implementation actions focus on providing “leadership to manage climate change; promote clean and efficient transportation options; encourage sustainable and efficient energy systems; promote sustainable development; support community revitalization; and build climate-resilient communities.”³⁹ Each of these policies contains programs and implementation strategies to reach target goals. To facilitate public awareness of goals, objectives and actions, the City has created a “visible strategies” website.⁴⁰



Source: <http://cityofrichmond.visiblestrategies.com/>

³⁷ "Richmond, CA - Official Website - Energy & Climate Change Element." Richmond, CA - Official Website. Web. 22 May 2011. <http://www.ci.richmond.ca.us/index.aspx?NID=1737>.

³⁸ "Richmond General Plan 2009-Energy and Climate Change Element." Richmond, CA - Official Website. 2009. Web. Mar. 2011. <http://ca-richmond2.civicplus.com/DocumentView.aspx?DID=5168>.

³⁹ "Richmond General Plan 2009-Energy and Climate Change Element." *Richmond, CA - Official Website*. 2009. Web. Mar. 2011. <<http://ca-richmond2.civicplus.com/DocumentView.aspx?DID=5168>>.

⁴⁰ "City of Richmond-Visible Strategies." *See-it™*. Visible Strategies, 2010. Web. Mar. 2011. <<http://cityofrichmond.visiblestrategies.com>>.

In addition, the City has been awarded two grants from the Strategic Growth Council (SGC). The SGC is a council created in September of 2008 whose objectives are to coordinate state agencies to help improve air and water quality, protect natural resources, promote public health, and improve transportation and promote areas that fall under SB 732.⁴¹ One grant will be used for the Miraflores Sustainable Community Greenbelt Project. This project will convert four acres of Brownfield into green space and creating recreational facilities, daylighting 750 feet of Baxter Creek and creating a community garden.⁴² The second grant will be used to create a Form-based code for Richmond's Commercial Corridor.⁴³ This code will be used as an implementation tool for transformation and revitalization of MacDonald Avenue. The transformation includes enhancing existing neighborhoods, encourage growth near transit centers, increasing housing and mixed-use choice.

SANTA CRUZ COUNTY

MATERIALS REUSE PLAN AND THE ACCESSORY DWELLING UNIT DEVELOPMENT PLAN

Santa Cruz County has been at the forefront of sustainability in the Bay Area for over 24 years. They began their sustainability planning shortly after the 1992 U.N. Conference on Environment and Development (UNCED) commonly known as Earth Summit. In 2000, they developed a sustainable community plan "Santa Cruz County: Local Agenda 21" following the U.N. Agenda 21 guidelines established after Earth Summit 1992. The basic framework for this agenda follows the Social, Environmental, and Economic Development (S.E.E.D.) framework, which is commonly referred to as the three E's.

Santa Cruz County has many outstanding sustainability plans, policies, and programs and it was difficult to select just one. Throughout our research of the Northern Section, one of the main reoccurring components of sustainability planning has been waste reduction and recycling planning. Each recycling plan has similarities and variance but it was the innovative waste capture program and Materials Reuse Plans in Santa Cruz County that stands above the rest. The goal of the Materials Reuse Plan is to reduce waste by "connecting people who are throwing away items with others who are seeking the same items"⁴⁴ (Santa Cruz County Recycles-Material Reuse, 2011).

⁴¹ "Strategic Growth Council." *Strategic Growth Council*. State of California, 2007. Web. Mar. 2011. <<http://sgc.ca.gov>>.

⁴² "SGC Sustainable Communities Planning Grants." *Sustainable Communities Planning Grants*. State of California, 3 Dec. 2010. Web. Apr. 2011. <http://www.sgc.ca.gov/docs/funding/2010_12_03_Planning_Grants_APPROVED.pdf>.

⁴³ SGC "Focus Area #1:Cities and Counties Local Planning and Implementation" <http://www.sgc.ca.gov/docs/funding/2010_12_03_Planning_Grants_APPROVED.pdf>

⁴⁴ "Santa Cruz County Recycles." *www.santacruzcountyrecycles.org*. County of Santa Cruz, Department for Public Works, 2011. Web. Apr. 2011. <<http://www.santacruzcountyrecycles.org/>>.

There are four primary components of the reuse plan, freecycle program, CalMAX(California Materials Exchange),Great Exchange Freepage, and Santa Cruz Cheapcycle. These programs work as a means of waste and landfill diversion by creating human connection. To increase participation in the programs incentives are offered to commercial and industrial recycling program participants. These incentives range from free advertising in the local paper to inclusion in the Santa Cruz County Environmental Shopping Guide. The success of these programs can be seen by the addition of 15 years of life of the Buena Vista landfill.

Another innovative approach to sustainability focuses on increasing density while minimizing the impacts of population growth, is the Accessory Dwelling Unit Program (ADU).⁴⁵ The goals of the ADU program are to provide more rental housing in the developed core of the city, promote infill development to help preserve open space, and to promote public transportation within the city. An ADU, is most commonly known as a “mother-in-law” or a “granny” unit. This is an additional living unit that can be attached or detached and consists of a kitchen, bathroom, and sleeping areas. Often times, ADU’s are located in the backyard as a small cottage or a garage conversion. ADU’s create an opportunity to increase the amount of affordable rental housing. ADU’s also provide an additional benefit to the community by providing supplemental income that can be used to decrease the mortgage payments of the home owner.

Currently, there has been a move towards sustainable regional planning with the development of AMBAG. Santa Cruz County is part of the Monterey Bay 21st Century in conjunction with San Benito and Monterey counties (AMBAG).⁴⁶

CITY OF BERKELEY

FIRST FINANCING INITIATIVE FOR RENEWABLE AND SOLAR TECHNOLOGY

repetitive text??>> Recently, Van Jones, director of The Ella Baker Center in Oakland, as keynote speaker at the Power Shift, conference for student environmentalists in Washington D.C. He focused his call for a power shift on solar power innovation when he said, “The wealthy people have the solar panels, and the poor people have to pay the high energy bills...Its fine to have solar panels on



⁴⁵ "City of Santa Cruz: Accessory Dwelling Unit Development Program." *City of Santa Cruz: Home*. City of Santa Cruz, 2009. Web. Mar. 2011. <<http://www.cityofsantacruz.com/index.aspx?page=1150>>.

⁴⁶ "Envisioning the Monterey Bay Area: A Blueprint for Sustainable Growth and Small Infrastructure." *Ambag.org*. Association of Monterey Bay Area Governments, Mar. 2011. Web. Mar. 2011.

the rich folks houses where its shady, but how about we put some solar panels on the poor folks houses where its hot so instead of the poor folks having to write checks to the energy company, the energy company can write them some checks so they can be able to put some food on the table and have a good life.” Of course, this makes sense and sounds like a great idea, but great ideas mean very little without the possibility of actualization. How could solar panels be installed on the roofs of people who cannot afford to buy them? How could such a plan be funded and implemented? In addition, could solar panel installation really generate an income for poor people while promoting renewable energy?

The answer to these questions comes from a plan tested in Berkeley, California called FIRST: Financing Initiative for Renewable and Solar Technology⁴⁷. In 2008, the City of Berkeley launched a pilot program to promote solar photovoltaic installations using a new financing mechanism. The program allowed property owners to borrow money from the City’s Sustainable Energy Financing District funded by



grants from the Bay Area Air Quality Management District (BAAQMD) and the Environmental Protection Agency (EPA) to use in the installation of the panels. Participants repay the financing through their property tax bill over twenty years. This financing program allows the homeowner to increase the value of their home and reduce their energy spending with little cost up front. The solar panels become a part of the home so the remaining tax obligation is passed on to the new owner if the home is sold.

This program models a process that can be implemented almost anywhere. It benefits the homeowner by making solar panel installation affordable and by increasing their property value. It benefits the renter by lowering their monthly energy costs. It benefits the planet by using a renewable form of energy and reducing dependence on fossil fuels. If implemented elsewhere, this initiative could very well reduce the burden of high-energy costs for low-income residents and possibly even generate an income over time. While energy companies would likely fight such a program if it were particularly successful, the state could provide tax benefits or similar incentives to allow of balance and the maintenance of business as usual. Perhaps each city could create a program for low-income residents to apply and get special energy benefits or dividends.

Berkeley FIRST program was intended to solve many of the financial hurdles of incorporating solar on their homes. The advantages of the Berkeley FIRST program were:

- There was relatively little up-front cost to the property owner.

⁴⁷ <http://www.ci.berkeley.ca.us/ContentDisplay.aspx?id=26580>

- The cost for the solar system is paid for through a special tax on the property, and is spread over 20 years.
- The financing costs were comparable to a traditional equity line or mortgage.
- Since the solar system stays with the property, so does the tax obligation—if the property is transferred or sold, the new owners will pay the remaining tax obligation.

While the pilot program worked well in Berkeley, recent rulings made by the Federal Housing Finance Authority will not allow any Property Assessed Clean Energy (PACE) programs that make the PACE loan superior to a mortgage and therefore Berkeley will not establish an ongoing program until this issue is settled. However, Berkeley’s FIRST program demonstrates how powerful such innovative solutions can be. FIRST was made possible due to strategic partnerships between regional, city and federal government bodies, BAAQMD, the City of Berkeley, and the EPA as well as the private sector party that administered the program, Renewable Funding LLC. Without these partnerships, this program would undoubtedly have been unsuccessful. In order to create a more sustainable, livable, and equitable future governing bodies on the local, statewide, and national level must work closely with business and nonprofits to create innovative win-win-win solutions.

CITY OF OAKLAND

FREE BROADWAY SHUTTLE, THE “B”



Last summer, the City of Oakland’s Community and Economic Development Agency launched a free shuttle called the “B,” short for “Broadway”, the central boulevard of downtown Oakland, as alternative to driving in the area. The B makes 19 stops across 6 districts including Jack London Square, Old Oakland, Chinatown, the City Center, and Uptown.⁴⁸ (See full map below) The B allows for convenient transit connection between Bay Area Rapid Transit (BART), the Ferry to Alameda or San Francisco, Capitol Corridor Amtrak, and AC Transit. At its current stage the shuttle is aimed towards commuters and local employees as it runs from 7 am to 7 pm on weekdays only; every 10 minutes during commute hours and every 15 minutes at all other times. The B connects dense residential neighborhoods with nearby commercial businesses, office parks, amenities, restaurants, bars, and cafes. According to Damian Breen of the Bay Area Air Quality Management District, a significant player in the creation of the B after providing the program with a \$1 million grant,

⁴⁸ <http://www.meetdowntownoak.com/shuttle.php>

Would local businesses in the area benefit from the added foot traffic? The B is an example of a straightforward program designed to stimulate the local economy, increase walkability and multimodal transportation, and decrease car traffic through the area. Like Berkeley's FIRST Program, The Broadway Shuttle is a program made possible by numerous agencies, departments, and private partners including the Bay Area Air Quality Management District, The Uptown, WETA, AC Transit and the City of Oakland to name a few. It provides yet another example of how very powerful strategic partnerships can be and furthers our final assertion that such partnerships are integral to the creation of more livable and sustainable cities.

V. KEY FINDINGS AND RECOMMENDATIONS

After spending the last four months pouring through dozens of city websites and evaluating their sustainability plans, we know exactly what we want to see for the future of sustainability planning in the Northern Section. We also know exactly what makes a good government website but that argument is for another time and place. Beyond the fundamental need for every plan to be developed using a strategic framework, we determined three additional recommendations for sustainability planning in the section.

Firstly, effective sustainability planning cannot exist on a city-by-city basis. We must begin to look at the future of our environment in a more holistic manner. Traditional planning saw a city's inputs and outputs in a linear fashion. Now that we understand the importance of a more closed loop, cradle-to-cradle approach to waste management it is important to understand the urban metabolism as what Timothy Beatley calls an, "organic whole." The best start would certainly be to create a new system of metropolitan bodies of planning and government that can take a fresh look at urban and suburban issues alike. With a new system of regional governance, planning decisions could be made in accordance to their geographic significance. In New Zealand, the governance is organized along the boundaries of each watershed. This way, appropriate decisions can be made for the community, the environment, and the economy from the same standpoint. Regional planning organizations exist in California; take the Association for Bay Area Governments (ABAG) for example. ABAG leads the Bay Area in "advocacy, collaboration, and excellence in planning, research, and member services."⁵⁰ However, without any real power of rewards or punishment, ABAG is severely limited in the influence of their actions. Regional governance must receive the authority to make changes and demands and eventually become a focal point of American government. Cities can no longer function as islands, competing for resources and investment as though their economic, environmental, and social infrastructures are mutually exclusive-certainly they are not.

Secondly, the most successful plans in this study are the result of a collaborative effort by various actors in the city or country from industry, to government, nonprofits, and consumers. "There is a creativity and attention to multiple factors that results from these interdisciplinary processes," writes Timothy Beatley in *Green Urbanism*. For sustainability to be viable in our free market society, it must be profitable. It must be mutually beneficial for business, government, and the planet alike. There must be positive incentives for reducing resource consumption or it will not be done. The solutions and creative ideas are out there. Hundreds of books have been written on solutions to the same urban issues this country has faced for nearly half of a century. All we need now are the strategic partnerships to execute. Take Berkeley's FIRST program highlighted above. It allows for a collaborative effort towards renewable energy sources by including the city government, the consumer, or homeowner in this case, and a number of different private companies in a creative financing initiative. For these types of partnerships to work fluidly, cities

⁵⁰ <http://www.abag.ca.gov/>

and companies alike must begin to disassemble the bureaucratic and administrative confines from within they operate and begin to plan for mutually beneficial partnerships across the sectors.

Lastly, we must begin extensive, far reaching campaigns to educate the public about sustainability, why a shift is necessary, and what they can do to help. In Europe, specifically Copenhagen and New Zealand, huge television advertising campaigns were introduced to inspire people to care a little more about their environment. In Curitiba, city officials created an advertising campaign that included cartoon characters teaching people how to recycle and reduce waste. In all three places, the campaigns were considered successful and continued for years. The power of advertisement cannot be overlooked, especially not in a material consumption focused country like the United States. Fifty years ago, everyone smoked cigarettes, but now thanks to suggestive advertising the number of smokers considerable dropped. With environmentally focused and regionally specific public service announcements on television and radio, government can begin to shape the attitudes of Americans around the environment and the need for a dramatic shift. It's not to say that the entire paradigm shift could be accomplished with a few commercials, but with education will come action.

Further Recommendations

We compared the sustainability plans of the Northern Section with the framework developed by TNS. We referred back to the four system conditions and used them as a guide. The four system conditions helped us determine what goal each community must aim for.

- First and foremost, every city planning department must adopt a framework for strategic sustainability planning. As stated above, TNS is a powerful tool for planning from the visioning stages through implementation. However, a planning department need not use TNS's framework specifically; there are many ways of planning strategically. Marin's Countywide Plan, for example, is a good example of sustainability planning in practice. The plan utilized economist Herman Daly's framework in its development. His framework includes three principles:
 - Renewable resources should not be used faster than they regenerate
 - Nonrenewable resources should not be used faster than renewable substitutes for them can be put into place
 - Pollution and waste should not be emitted faster than natural systems can absorb, recycle, or render them harmless⁵¹

Once principles such as Daly's are set in place, Marin can conduct a baseline analysis to determine the major problems facing the environment and begin to come up with solutions.

- Each "sustainability" plan must define the term. This will help determine whether the planning is taking a holistic or isolated approach. Is sustainability the overall goal? Or is it a smaller piece to accomplish to get to a greater goal? We have seen the term used under the larger term "green" or "environment", but have also seen the use of the concept as an overarching goal, and even in sync with "green", "environment", and "community". Until the

⁵¹ *County of Marin*. Marin Countywide Plan. 2007.

term “sustainability” is more concretely defined, each planning organization must continue to define it on a case-by-case or department basis.

- Follow the ABCD planning process. The guide offers recommendations to procedures that can be taken on to implement the process. To promote awareness, the organization/community can build awareness of sustainability and develop a common understanding of the concept. Creating an inventory of assets that can potentially play a role in sustainability efforts is a way to perform the baseline analysis step. Having a compelling vision means creating long-term strategic goals as a guide towards sustainability, these goals can be drawn from the baseline step. Getting down to action can involve setting performance indicators and targets.
- Adopt concrete targets and stricter policies to achieve these targets. Although communities have taken steps towards sustainability, their goals are too often developed in a way that does not allow for future measurement of success. Palo Alto has a goal to be a zero waste community by 2021. However, it has adopted an environmental purchasing policy that only applies to the City. In 2005, Santa Rosa adopted along with other cities of Sonoma County the most ambitious GHG reduction targets (reduction of GHG emissions by 25% below 1990 levels by 2015).⁵² Santa Rosa also has various policies that do not even bind the City to environmentally preferred initiatives, but uses phrases such as “whenever practicable” in its policies. Progress towards sustainability needs to be measured. Targets must be set for cities or regions can determine what is working and what is not.
- Information must be made easily available and accessible to the public. Our project was dedicated to learning how to maneuver around government websites. At times, we had difficulty finding the resources and information. The interested public ought to be able to easily understand what is being done in his or her city to promote a more sustainable and livable community.

⁵² *Santa Rosa, California*. Web. 22 May 2011. <http://ci.santa-rosa.ca.us/environmental_stewardship/GHG/Pages/AboutGHGReductionProgram.aspx>.

VI. APPENDICES

(Under Development . . .)

Appendix A: Council Sustainability Resolution

Appendix B: Action Planning Worksheet

Appendix C: Scope of Work for SFSU Client Project

APPENDIX A – COUNCIL SUSTAINABILITY RESOLUTION

What might adopting the TNS framework look like?

(Note: this is a summary of a draft resolution.)

COUNTY OF HAWAI‘I STATE OF HAWAI‘I

RESOLUTION NO. ____

A RESOLUTION DECLARING THE COUNTY OF HAWAI‘I’S COMMITMENT TO SUSTAINABILITY PRINCIPLES BY SETTING A PATH TOWARD IMPLEMENTATION OF THE POLICIES DEVELOPED BY THE MAYOR’S GREEN TEAM.

WHEREAS, the County of Hawai‘i is both consumer and steward of our Island community and its resources and should encourage cost savings measures that minimize the County’s impact on the land to ensure the needs of tomorrow can be met; and

WHEREAS, the adoption of four sustainability principles can provide a holistic framework that will assist County employees and elected officials towards a more sustainable direction collectively; and

WHEREAS, these sustainability principles are scientifically rigorous, internationally recognized, successfully implemented across the world, and offers concrete and simple ways to accelerate change toward sustainability;

WHEREAS, these sustainability principles are reflected as:

1. Reduce and eventually eliminate our contribution to the progressive build-up of materials (such as fossil fuel and their associated wastes) that are extracted from the earth’s crust;
2. Reduce and eventually eliminate our contribution to the progressive build-up of synthetic materials produced by human society;
3. Reduce and eventually eliminate our contribution to the ongoing physical degradation of the earth; and
4. Reduce and eventually eliminate our contribution to conditions that undermine people’s ability to meet their basic needs; now, therefore,

BE IT RESOLVED BY THE COUNCIL OF THE COUNTY OF HAWAI‘I that the County of Hawai‘i declares its commitment to sustainability as outlined above and its intent to adopt the sustainability principles and goals by formalizing the County of Hawai‘i Mayor’s Green Team.

BE IT FURTHER RESOLVED, that the County of Hawai‘i will approach decisions about policies, operations and capital improvements in a more systematic way. Using sustainability framework, the County of Hawai‘i Green Team will:

- Work to increase awareness of sustainability among its staff and management. This will provide us with a common language and keep all of us thinking about the impact we have during the course of our daily tasks.
- Take an inventory of current efforts that make progress toward sustainability and do a baseline assessment based on the Local Government Operation Protocol (LGOP) to enhance our current efforts and identify additional improvements.
- Formulate a vision of what sustainability means for the County of Hawai‘i and identify short-term, medium-term, and long-term goals and benchmarks necessary to achieve that vision.

V. Key Findings and Recommendations

- Incorporate the awareness and terminology of sustainability into our budget decisions, program administration and project development.

To achieve this, the County of Hawai'i will ask questions of relevant projects or policies like:

- Does this help move the County of Hawai'i toward sustainability (even if incrementally)?
- Will elements of this project serve as a potential steppingstone toward other changes or initiatives?
- Will increased implementation costs yield savings in the long-run or provide a social or environmental return on investment?

Dated at _____, Hawai'i, this ____ day of _____, 2009.

INTRODUCED BY:

COUNCIL MEMBER, COUNTY OF HAWAI'I

APPENDIX B: ACTION PLANNING WORKSHEET

This worksheet is one simple example of a format that can be used to summarize i) who is responsible for seeing initiatives through, ii) the organizations that will provide support for the initiative, iii) the timeline for the initiative to be implemented, iv) the link to which indicator that will measure progress towards sustainability, and v) the link to other community systems. Every organization and community will create its own system for summarizing actions, timelines and responsibilities.

Key Community System: _____ (e.g. Water)

Action	Responsible Org.	Support Org(s).	Timeline	Indicator	Link to Other Community Systems
Install green roof on new community center	Parks Department	1) Public Works 2) Local Builder	1 year	Energy use	Energy, Built Environment

Source: Integrated Community Sustainability Planning Guide, 2009

APPENDIX C: SCOPE OF WORK FOR SFSU CLIENT PROJECT

Sustainability Planning Inventory and Guide Project

Work Scope, March 4, 2011

Prepared for: APA California – Northern, Sustainability Committee, Scott Edmondson

Prepared by: SFSU Client Project Team

- **Jennifer Miller**
- **Maria Lee**
- **Michael Liles**

In the following, the term *project team* means the San Francisco state University Senior Seminar project team. The overarching goal of the project team is to support the APA Sustainability Committee's creation of a learning and practice network for city planners to enhance the capacity for, and to accelerate, effective sustainability planning in the Section. The final report will contain a short guide to sustainability innovation, a few benchmark cases and resources, profiles of innovative cases in the Northern Section, an overview of the state of sustainability planning in the Northern Section along with an inventory of initiatives, recommendations, and appendices as needed.

Task 1: Project Startup

Task 1a: Project Team Work Session #1: Project Startup. The Project team will conduct a 2 hour working session with APA California Chapter Northern Section Board Chair, Scott Edmondson to discuss the project overall, its goals, key concepts of sustainability, products, schedules, lines of communication and other relevant project issues.

Task 1b: Means of Communication. The project team will create a Google Group to use exclusively for communication and discussions between the SFSU project team and Scott Edmondson. In addition, Scott will invite the SFSU team to the Yahoo Sustainability Committee Group to help expand our understanding of the process of program development and to facilitate client/project team immersion.

Task 2: Client Provisions

Task 2: Preliminary Training

The client will provide the project team with a training guide consisting of various multimedia resources to understand key concepts of sustainability and sustainability planning. The SFSU team will review materials in weeks 1 and 2, and discuss the primary learnings during the first hour of second Team meeting. Subsequently, the project team will use this understanding to identify and profile key cases of sustainability planning innovation.

Task 2b: Communication with Sustainability Committee Board

The client will confer with the Board to determine whether it is appropriate for the SFSU team to contact planning directors in the Northern California Chapter regarding current sustainability planning projects in their areas.

Task 2c: Identify Counties

The Client will provide the SFSU team with a list of counties (and cities if readily available) in the Northern California Charter.

Task 3: Research*Task 3a: Benchmark Case Profile*

In consultation with the Client, the project team will research and select a few outstanding examples of sustainability planning. From these examples, the team will construct to guide key characteristics and aspects of powerful and innovative sustainability planning.

Task 3b: Create Inventory

Quickly survey the “landscape” of sustainability planning in the Northern Section, and compile a list of sustainability planning projects, policies, initiatives, and ordinances within the identified Northern California Chapter Counties.

Task 3c: Profiles

The project team will select from the inventory exemplary cases to profile innovative sustainability practices.

Task 4: Draft Final Report*Task 4a: Key Concepts*

The project team will assemble a database of useful information gathered for the inventory as an appendix of the final report.

Task 4b: Recommendations

The project team will develop recommendations for the Sustainability Committee on key things to emphasize in the development of the learning practice network. The recommendations will be based on the project team’s sustainability training and research into practice in the Northern Section.

Task 4c: Quick Guide

The project team will develop a short overview (about 2 pages) of the key elements of innovative sustainability planning as one of the chapters in the report.

Task 4d: Review/Comment

Client will review and comment on the initial draft as input into preparation of the final report for the class and client.

Task 5

Task 5: Informal presentation with the APA Board (Thursday, May 5th at ESA, 225 Bush Street, Suite 1700, San Francisco).

Gantt Chart

Tasks	February			March			April				May			
	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14
	2/14-2/20	2/21-2/27	2/28-3/6	3/7-3/13	3/14-3/20	3/21-3/27	3/28-4/3	4/4-4/10	4/11-4/17	4/18-4/24	4/25-5/1	5/2-5/8	5/9-5/15	5/16-5/23
Preliminary Steps														
Contact Client/ Create Agenda	17-Feb													
1 st Client Meeting		21-Feb												
Establish Means of Communication														
Training Guide	22-Feb													
Draft Scope of Work		27-Feb												
2 nd Meeting Agenda			4-Mar											
2 nd Client Meeting				7-Mar										
Research														
Benchmark Case Studies														
Research Preparation														
Background Paper							22-Mar							
3 rd Meeting Agenda					14-Mar									
3 rd Client Meeting						21-Mar								
Conduct Research														
Create Inventory														
Final Report														
4 th Meeting Agenda								28-Mar						
4 th Client Meeting								4-Apr						
Key Concepts														
Recommendations														
5 th Meeting Agenda									11-Apr					
5 th Client Meeting										18-Apr				
Develop PowerPoint														
PowerPoint Presentation (Dry run)										19-Apr				
Final Presentation to Client											3-May			
APA Presentation												5-May		
Write Final Report														
Final Report Due														23-May

