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Introduction

2005 National Report Card Findings

WASHINGTON (AP)—Crowded schools, traffic-choked roads and transit cutbacks are eroding the quality of American life, according to an analysis by civil engineers that gave the nation's infrastructure an overall grade of D.

A report by the American Society of Civil Engineers assessed the four-year trend in the condition of 12 categories of infrastructure, including roadways, bridges, drinking water systems, public parks, railroads and the power grid.

The overall grade slipped from the D-plus given to the infrastructure in 2001 and 2003.

"Americans are spending more time stuck in traffic and less time at home with their families," William Henry, the group's president, said in a statement.

The report said \$1.6 trillion should be spent over the next five years to alleviate potential problems with the nation's infrastructure. Transportation alone requires \$94 billion in annual spending, the report said.



California Report

Roads

- 60% of California's major urban roads are congested.
- 71% of California's major roads are in poor or mediocre condition.
- Vehicle travel on California's highways increased 25% from 1990 to 2003. California's population grew 19% between 1990 and 2003.
- The state has transferred \$3.1 billion from the transportation trust fund to the general fund.
- Driving on roads in need of repair costs California motorists \$12.6 billion a year in extra vehicle repairs and operating costs --- \$554 per motorist.
- Congestion in the Los Angeles metropolitan area costs commuters \$1,668 per person per year in excess fuel and lost time.
- Congestion in the San Bernardino area costs commuters \$1,043 per person per year in excess fuel and lost time.
- Congestion in the San Diego area costs commuters \$865 per person per year in excess fuel and lost time
- Congestion in the San Francisco area costs commuters \$1,325 per person per year in excess fuel and lost time.



Bridges

- 28 % of California's bridges are structurally deficient or functionally obsolete.



Dams

- There are 44 state-determined deficient dams in California.
- California has 336 high hazard dams. A high hazard dam is defined as a dam whose failure would cause a loss of life and significant property damage.
- The estimated rehabilitation cost for California's most critical dams is estimated at \$679 million.



Drinking Water

- California's drinking water infrastructure needs \$17.5 billion over the next 20 years.
- California loses 222 million gallons of drinking water a day due to leaking pipes.



Wastewater

- California has \$14.4 billion in wastewater infrastructure needs.



Solid Waste

- California generates 1.55 tons of solid waste per capita.
- California recycles 40.2% of the state's solid waste.



Schools

- 71% of California's schools have at least one inadequate building feature.
- 87% of California's schools have at least one unsatisfactory environmental condition.

According to the State's Independent Budget Analyst:

The state faces a significant challenge in addressing both the deficiencies of an aging public infrastructure and the need for new infrastructure to sustain a growing economy and population. To effectively meet this challenge, the state needs a well-defined process for planning, budgeting and financing necessary infrastructure improvements. Given the state's financing situation, there is really no stable funding source year-in and year-out for most state infrastructure projects. As the state's population continues to increase, the need for investment in new capital facilities

will grow commensurately. Compounding the challenge will be the need to renovate and replace existing facilities in order that they can continue to serve their purposes.

If we let our infrastructure continue to crumble, we'll keep losing jobs and businesses. Our most essential services will be threatened, *because lost jobs mean less support for roads, schools and public safety. Our roads and highways, once the pride of the nation, have become faltering drains on the state's economy. Many of our cities rely on drinking water systems built in the 1920s and 1930s. Our beaches are fouled by sewage leaking from disintegrating facilities, some nearly a century old.*

San Diego Region's Infrastructure – A Legacy in Peril – 2005 Update

In October 2004, the San Diego Chapter of the American Society of Civil Engineers (ASCE) published the San Diego Region's first infrastructure report card. This 2005 update is the result of several factors:

1. New National Report Card in March of 2005;
2. National ASCE Conference in Los Angeles in October 2005;
3. The City of San Diego's Financial Crisis;
4. The voter approved extension for 40 years of our sales tax for local transportation projects;
5. The addition of information on school facilities Kindergarten through 12th Grade;
6. Need for additional copies of the Citizen's Guide; and
7. Opportunity to acknowledge financial support from the San Diego Chapters of American Public Works Association (APWA) and Consulting Engineers and Land Surveyors of California (CELSOC).

Each of the chairs of the six categories covered in the 2004 Report Card were asked to review their findings and determine if there was a need to update the findings and grade. Based on their review, no grades were changed from 2004, but we identified the following issues/trends that if unchanged over time will result in further degradation to multiple infrastructure categories:

1. Lack of infrastructure funding
2. Dramatic increases in construction cost as the result of a number of factors including
 - a. High volume of construction activities resulting in less competition,

- b. Higher cost of materials due to national and international demands and/or shortage of local supplies, and
 - c. Higher fuel costs
3. State and City of San Diego Financial Problems
4. Rapid increase in the cost of real estate
5. Deferral of maintenance
6. Recent natural disasters such as hurricanes Katrina and Rita which show the importance of our local infrastructure in both avoiding loss of life and property and in restoring communities after a disaster.

Who Pays for Infrastructure?

As stated in the ASCE National Report Card, "Our public works are public assets. We all have a stake in their upkeep and operation, and we all share in the expense of construction and maintenance. Sometimes, those who actually use the infrastructure most must pay for it through tolls, utility bills, or special taxes on gas, airline tickets, and other items. But because infrastructure improvements affect us all by supporting our economy and providing fundamental community services, the public usually bears a portion of the cost through general tax revenues."

All levels of government, from federal to state, county, regional, municipal and special districts share in the responsibility for collecting and distributing funds for infrastructure improvements. At the local level, funds are often raised through the issuance of bonds or the collection of general, property or sales taxes or user fees. As noted in the National ASCE Report, "This places responsibility for infrastructure renewal and development squarely with the individual voters, who must approve bond issues and elect political leaders who will make our infrastructure needs a priority."

Preserving Our Infrastructure

San Diego County is comprised of numerous communities, some dating back nearly two centuries, while others have been in existence for only a few decades. Yet the infrastructure everywhere, even in the relatively newer areas, requires continuous attention, maintenance and ongoing replacement and expansion. As previously noted, we take many of these public works systems for granted, despite the fact that we so heavily rely on them to maintain our economic prosperity and quality of life.

This 2005 San Diego County Infrastructure Report Card and Citizens Guide is intended to serve as a vehicle to engage our community and

civic leaders in a call to action for stronger investment in our region’s vital infrastructure. This has never been more important, as we stand on the brink of tremendous projected growth over the next few decades. Please use this guide to get involved in protecting our infrastructure investments and planning for the future. It’s your community and your future at stake.

Grading of Our Infrastructure

The working committee and the review committee assigned letter grades to six (6) public infrastructure categories for the incorporated and unincorporated areas of San Diego County assessed in 2003-2004. The Chair of each working committee reviewed the 2004 Report Card grades for the Update. No changes in the grades for the individual categories were recommended. The grade for the new category, School Facilities (K-12) was established by the chair of the working committee and reviewed by the review committee.

The Report Card on the following pages has been updated and shows how public infrastructure in San Diego County measures up.

Grading Criteria

The grading follows the academic scale of A to F: A grade of “B” means the infrastructure category is “meeting acceptable standards,” meaning it is adequate. Below is the methodology to determine the grade for a category.

Step 1: Existing Adequacy: Each committee rated from “poor” to “good” the existing adequacy of the infrastructure considering three components:

- Operations (safety, security, maintenance plan and available funding to maintain, operate and improve)
- Condition (physical fitness, state of readiness, and reliability)
- Capacity (ability to meet current demands)

Each component received a numerical score using the following:

Poor (not adequate)	Fair (needs improvement)	Good (adequate)
0	1	2

Step 2: Future Adequacy: Next, committees rated the adequacy of each component (Operations, Condition, and Capacity) to meet future demands based on the following criteria:

- **Long Term Plan:** Each component received a score from 0.0 to 1.0 points for its long-term plan. Zero points were awarded if no long-term plan identifying the future needs existed. Comprehensive and long-term plans would receive up to the maximum of 1.0 point. “Capital Improvement Plans” (CIP) by local agencies would receive partial points because of the short-term and limited details of these “plans”.
- **Long Term Funding:** Each component also received a score from 0.0 to 1.0 points for planned funding. Zero points were awarded if no long-term funding plan could be identified. Maximum points were awarded if long-term funding was identified and in place to meet future requirements. Intermediate points were awarded proportionate to the amount of long-term funding identified and in place.

Step 3: Total Score and Grading: Committees next totaled up the scores of each component and then added all of the scores for an infrastructure category score. Each committee decided whether to average the infrastructure category score or work with a total.

The table below translates the infrastructure category and component score to a Grade. The category grade assumes an equal weight for each component.

Infrastructure Score	Component Score	Grade
11 to 12	4	A
8 to 11	3	B
5 to 8	2	C
2 to 5	1	D
0 to 2	0	F

EXAMPLE: Widgets Infrastructure Condition

– Poor-0, Fair-1, Good-2
 – Funding: if funding in place receives +1.0 point
 – Plan: if plan in place receives up to +1.0 point

Condition: Fair 1.0
Funding: partial 0.5
Plan: complete 1.0
 Condition Score = 2.5/C+

Capacity

– Poor-0, Fair-1, Good-2
 – Funding: if funding in place receives +1.0 point
 – Plan: if plan in place receives +1.0 point

Capacity: Fair 1.0
Funding: partial 0.5
Plan: partial 0.8
 Capacity Score = 2.3/C+

Operation

– Poor-0, Fair-1, Good-2
 – Funding: if funding in place receives up to 1.0 point
 – Plan: if plan in place receives up to 1.0 point

Condition: Good 2.0
Funding: partial 0.3
Plan: complete 1.0
 Operations Score = 3.3/B+

Category Score = 8.1 Grade B-

Report Card

C Land & Sea Ports of Entry

The San Diego area has three land ports of entry on the U.S./Mexico border and three seaports of entry on the San Diego Bay.

Trade, commerce, and goods movement account for billions of dollars of economic growth in the San Diego region. In 2002 the County of San Diego had a Gross Regional Product (GRP) of approximately \$126 billion and the GRP of the Municipality of Tijuana was approximately \$11 billion. Together, the combined economy would rank 30th in the world. Continued investment in land and seaports of entry is essential to the region’s economic growth.

B- Open Space & Parks

Includes: Neighborhood and Community Parks, Regional Parks and Open Space, and Beaches.

The continued population growth in the San Diego region is outpacing the creation of new active parks and putting pressure on biological resources. Although long-term plans have been developed to address these issues, there is a lack of secured funding for the acquisition as well as subsequent maintenance of open space for habitat protection and the increase neighborhood park capacity to meet recreational demand.

C+ School Facilities

Includes: Kindergarten through 12th grad (K-12)

This category covers all kindergarten through Grade 12 schools in the San Diego Region.

Funding of educational infrastructure in San Diego County remains inadequate. School facilities conditions range from good to poor reflecting the funding challenges in public education. Some recent victories achieved through passage of various school bonds are overshadowed by ever aging infrastructure, the states funding woes, and an apparent lack of commitment on the part of school districts to adequately fund annual maintenance needs.

C- Storm Water Collection & Treatment

Storm Water Collection and Treatment covers the reduction or elimination of pollutants such as pesticides, herbicides, fertilizers, cigarette butts, litter, and pet waste associated with urban runoff.

Our bays and beaches are symbolic to the San Diego region, as they provide areas for recreation and reflection, drawing the community as well as tourism. The quality of life in the region is interconnected with the quality of water. Ensuring the quality of our storm water will need funding to improve the treatment systems and provide long-term maintenance.

C Surface Transportation

This category includes highways, local streets and roads, transit, and Intelligent Transportation Systems (ITS).

Drivers in the San Diego region are experiencing rapid increases in congestion on highways and local streets/roads, including a 22% increase in congested freeway miles from 2002 to 2003 alone. On the transit side, the system is slightly undersized but operates efficiently relative to other similar cities. Only a small portion of the regions planned ITS elements have been deployed. Funding for new construction, or even for maintenance and operation of the existing systems, has declined rapidly and, even with some recent good news in funding, shortfalls could reach \$25 billion by the year 2030.

B- Wastewater Systems

This category covers the wastewater collection systems and treatment facilities in the San Diego region.

Our wastewater treatment facilities are in fair to good, condition, while the collection systems, although having adequate capacity, are in poor physical condition. Routine inspection is needed, and funding for maintenance and increasing improvements must be secured to keep the systems compliant with regulations and discharge standards.

B Water Supply

This category includes the supply, treatment, and distribution of drinking water to customers throughout the San Diego region.

Facilities for treating water and distributing it to customers are generally in fair to good condition. But continued rapid increases in construction costs, or prolonged inability for the City of San Diego to finance capital improvements or a long drought would reduce the overall grade for Water Supply. It is vital to continue on-going maintenance efforts and adequately plan for future improvements.

Understanding Infrastructure Issues

Now that you have seen the San Diego County infrastructure report card, you may be asking how you can help improve our County's and cities' infrastructure. Our suggestions parallel those in the ASCE National Report Card.

Infrastructure is a complex network of public works, which includes roads, bridges, dams, and utilities. The rules governing infrastructure planning, financing, construction, and upkeep are equally complex. Whether your goal is to shorten your daily commute, attract new business to your community, or protect the environment for your children, gaining a better understanding of these rules is the first step toward becoming an advocate for sustaining infrastructure at acceptable standards of condition in your community.

As you read through the Citizen's Guide, please think about the following:

Be an informed citizen. In order to influence public officials about infrastructure needs in your community, you must understand what those needs are. Consider the Infrastructure Report Card. How does your community measure up?

Demand continuous and timely maintenance. If transportation, water, and other infrastructure facilities are not kept in sound condition, they cannot support the level of service they are designed to handle. Regular maintenance prolongs use and minimizes the need for costly repairs, just as with your home or automobile. The money saved can be used to fund other community priorities. Unfortunately, policies often encourage new construction at the expense of maintenance.

Think long-term. Renewing America's infrastructure is an ambitious goal that cannot be achieved overnight. Today it often takes over ten (10) years from conception through implementation of a major infrastructure improvement. Furthermore, the roads, bridges, water treatment plants, and other facilities built today must serve for decades to come. Comprehensive planning and long-term investment are key to sound decisions about infrastructure.

Consider all the factors influencing infrastructure decisions. Building a new highway has implications beyond the immediate highway corridor. For example, concern that a new highway may displace wetlands must be balanced against the reduction in air pollution that will result from decreased traffic congestion.

Do more with less. Clearly, money alone will not solve our infrastructure problems. Solutions to urban problems such as traffic congestion and contaminated water require new technologies and approaches. Research can help identify more efficient designs and longer lasting, low maintenance materials. And, we can change our behavior through recycling, telecommuting, or using mass transit, for example, to reduce the demand on our infrastructure.

Preserve the environment. To use the nation's resources most effectively, we must balance environmental and economic goals. Land use and transportation patterns designed to foster economic growth and personal mobility can be developed in harmony with environmental benefits.

Look at the big picture. Remember that beyond the immediate, individual benefits gained from infrastructure improvements, there are broader community benefits. For example, even though you may not use the new mass transit system its construction will reduce traffic congestion on local roads and increase nearby property values.

Land & Sea Ports of Entry

C

Introduction

Trade, commerce, and goods movement account for billions of dollars of economic growth in the San Diego region. In 2002 the County of San Diego had a Gross Regional Product (GRP) of approximately \$126 billion and the GRP of the Municipality of Tijuana was approximately \$11 billion. Together, the combined economy would rank 30th in the world.

San Diego County has three land ports of entry and three sea ports of entry, which contribute significantly to the regional, statewide, and national economy. Much of our region's world trade exports and tourism pass through these land and sea ports of entry.

Background

The land ports of entry are located along the U.S./Mexico border and include San Ysidro, Otay Mesa, and Tecate. The San Ysidro port of entry is the busiest land border crossing in the western hemisphere handling over 31 million northbound and southbound passenger vehicles annually. Adjacent to the San Ysidro port of entry is the border railroad crossing for the San Diego and Arizona Eastern Railway/Ferrocarriles Peninsulares del Noroeste, which also has another border crossing at Campo just east of Tecate.

The Otay Mesa port of entry handles nearly 9.3 million northbound and southbound passenger vehicles, buses, and trucks annually. It is the region's main commercial port of entry handling the second highest volume of trucks along the U.S./Mexico border, over 1.4 million northbound and southbound annually. The eastern most port of entry is Tecate, which handles over 2.4 million northbound and southbound passenger vehicles, buses, and trucks annually.

Sea ports of entry include the Tenth Avenue Marine Terminal, the National City Marine Terminal, and the B Street Cruise Ship Terminal. The Tenth Avenue Marine Terminal is a 96-acre, multi-purpose facility handling over 200 commercial ships and 1.4 million metric tons of commercial goods annually. The Tenth Avenue Marine Terminal accommodates refrigerated commodities, small scale container operations, break bulk, and dry/liquid bulk cargoes. The National City Marine Terminal is a 125-acre complex handling over 200 commercial ships and 500,000 metric tons of commercial goods annually and accommodates small scale container operations, lumber, and import/export automobiles and trucks. The B Street Cruise Ship Terminal currently handles 196 passenger ships annually accommodating over 440,000 embarking/disembarking passengers.

Infrastructure Assessment Methodology

The following sections provide an overview of the Land and Sea Ports working committee, definition of terms, and a description of the infrastructure assessment methodology.

A) Overview of the Land and Sea Ports Working Committee:

The working committee is comprised of representatives from the California Department of Transportation, the San Diego Unified Port District, the U.S. General Services Administration, the San Diego Association of Governments, and private sector consulting firms specializing in goods movement and transportation planning.

B) Definition of Terms:

1. **Condition** is defined as a physical attribute, predicament, and/or circumstance of the facility.
2. **Capacity** considers demand served and physical limitations of the facility.
3. **Operation** considers travel patterns, demand, and available capacity relative to functionality. The evaluation of maintenance, staffing, and security was not considered.
4. **Supporting infrastructure** includes feeder roads, local streets, state and federal highways.

C) Infrastructure Assessment Methodology:

The working committee met on a number of occasions over a six month period to discuss the infrastructure assessment, define the terms, evaluate the facilities, and develop a grade. In addition to the meetings, correspondence continued throughout the process via email and telephone conversations. The working committee determined that each facility would be evaluated considering existing condition, capacity, operation, and supporting infrastructure. Information was gathered from a variety of sources, including publications, visual “windshield” inspection, and discussion with relevant agencies. The primary evaluation is based on information developed in recent studies. Evaluation of operating land and sea port facilities, such as security requirements, maintenance, staffing, etc; is intangible, subjective, and management based. Therefore we have not tried to measure operations in this context.

Infrastructure Assessment

Six facilities were evaluated as part of the infrastructure assessment process, including the Land Ports of Entry at San Ysidro, Otay, and Tecate; and the Sea Ports of Entry at the Tenth Avenue Marine Terminal, the National City Marine Terminal, and the B Street Cruise Ship Terminal.

It should be noted that Caltrans and SANDAG have been working closely on a Binational Infrastructure Transportation Needs Assessment Study (BINS), which should be released for public review in the next few months. The BINS report is border-wide and includes transportation corridors of all ten U.S/Mexico border states. The report will include a complete assessment of the supporting infrastructure and different transportation modes and corridors serving land ports of entry.

A) Land Ports of Entry

The following identifies the assessment of the Land Ports of Entry.

Condition

All of the existing facilities are maintained to the standards requested by the occupying federal agencies. However, these facilities are inadequate to meet increased security needs and the increased growth in border crossings. The Homeland Security Administration, the General Services Administration, and the U.S. Bureau of Customs and Border Protection are working together to implement planned improvements at each of these ports of entry.

Capacity

Capacity is constrained by the physical limitations of each of the facilities. User demand during peak periods throughout the weekday and weekend day generally exceeds practical capacity at each of the facilities. The facilities experience overwhelming demand and long wait times in the northbound direction. Southbound capacity is generally adequate for the demand except in peak commuter periods at Otay Mesa and San Ysidro, such as Friday afternoons and holidays. Capacity during off-peak periods appears to be adequate with minimal wait times in the northbound direction.

Operation

Functionally, each of the facilities is constrained by physical limitations of the local street network, overwhelming demand, and limited capacity. The facilities operate according to demand. This demand is generated by the number of border crossings and the level of threat that is placed upon the operating agencies at any given time. Recent studies have suggested expanding hours of operation or modifying time of day restrictions on types of vehicles and entries allowed into cargo compounds to provide greater flexibility to shippers and transportation companies at the Otay Mesa Port of Entry.

Supporting Infrastructure

Recent studies have indicated that the supporting infrastructure associated with the ports of entry can negatively affect the facility’s

operation both in Mexico and the United States. These reports call for a balanced investment in road infrastructure, which could improve the cross border flow of passengers and commercial cargo. Supporting infrastructure for the U.S. side of the border Land Ports of Entry include the following:

- San Ysidro Port of Entry
 - Interstates 5 and 805
 - San Ysidro Service Port/Arizona to San Diego and Arizona Eastern Railroad
- Otay Mesa Port Of Entry
 - State Route 905
- Tecate Port of Entry
 - State Route 94
 - State Route 188
 - Campo Service Port/San Diego and Arizona Eastern Railroad

B) Sea Ports of Entry

The following identifies the assessment of the Sea Ports of Entry.

Condition

The existing facilities are maintained to accepted industry standards and on-site infrastructure adapts to meet the ever changing needs of the customers and tenants.

Capacity

Capacity is constrained by the physical limitations of each of the facilities. On-site capacity at the Tenth Avenue Marine Terminal is constrained due to space requirements and surrounding land uses. Capacity at the National City Marine Terminal is generally adequate for current demand and planned improvements are underway to provide additional capacity to meet anticipated near-term demand. The B Street Cruise Ship Terminal currently meets passenger demands, but the demand is expected to outgrow the capacity in the near-term.

Operation

Functionally, all of the sea port facilities are constrained by the physical limitations of the facility, surrounding land uses, local street network, and limited capacity. Primary access to the Tenth Avenue Marine Terminal is severely constrained due to frequent railroad and trolley movements at the adjacent at-grade crossings, substandard intersection geometrics, and community concerns regarding truck movements. The B Street Cruise Ship Terminal is constrained by the physical size of the facility; its location; and the limited area for

ground transportation (buses, taxis, etc.) to serve cruise ship passengers. The cruise ship terminal operates according to demand based on cruise ship schedules.

Supporting Infrastructure

Supporting infrastructure for the Sea Ports of Entry is as follows:

- Tenth Avenue Marine Terminal
 - Interstate 5
 - Cesar Chavez Parkway
 - Harbor Drive
 - San Diego and Arizona Eastern Railroad
 - Burlington Northern Santa Fe Railroad
- National City Marine Terminal
 - Interstate 5
 - Bay Marina Drive/24th Street
 - Civic Center Drive/Tidelands Avenue
 - San Diego and Arizona Eastern Railroad
 - Burlington Northern Santa Fe Railroad
- B Street Cruise Ship Terminal
 - Harbor Drive
 - San Diego Metropolitan Transit System/Amtrak

Supporting infrastructure for the Tenth Avenue Marine Terminal and the National City Marine Terminal is inadequate to handle current needs. Recent studies have identified the need for significant access improvements to adjacent roadways and railroad, including improvements to freeway interchanges to handle increased truck traffic and truck turning movements, limit delays/conflicts at the at-grade rail/trolley crossings, and limit the volume of truck traffic on local streets. Supporting infrastructure for the B Street Cruise Ship Terminal is generally adequate.

Security

Although security will not be graded in this report card, it should be noted that the U.S. Department of Homeland Security is continually working to improve security at our ports of entry while at the same time allowing free flowing movement of goods and people. Several security programs have been implemented and/or are planned, such as the following:

- The Secure Electronic Network for Travelers Rapid Inspection (SENTRI) program are dedicated commuter lanes where prescreened applicants and vehicles are allowed to cross the border Northbound into the U.S. usually more quickly and efficiently. This program is in place at Otay Mesa and San Ysidro. The system uses Automatic Vehicle Identification technology to screen the driver and the vehicle every time they cross.

- The Free and Secure Trade (FAST) program allows shippers access to dedicated cargo lanes at the borders in exchange for strengthening their supply chains through pre-approved submittals. The FAST program is currently operational at the Otay Mesa port of entry.
- The U.S. VISIT program is an automated entry/exit system that is being implemented incrementally at all U.S. ports of entry. The system will collect arrival and departure information and is capable of scanning travel documents and taking fingerprints and pictures of visa holders, which then could be checked against databases to determine whether the individual should be detained or questioned. The system is expected to expedite legitimate travelers, while making it more difficult for those intending to do us harm to enter the U.S. The program has been implemented at the seaports and will be implemented at the land ports by January 2005.

Conclusions and Recommendations

The following table identifies the infrastructure assessment grade applied to each port of entry and it also identifies an overall grade.

Infrastructure Assessment Grade				
Port of Entry	Condition	Capacity	Operation	Supporting Infrastructure
San Ysidro	B	C	C	C
Otay Mesa	B	C	B	F
Tecate	D	F	B	F
Tenth Avenue Marine Terminal	C	F	C	F
National City Marine Terminal	B	C	B	C
B Street Cruise Ship Terminal	C	F	C	B
Average Grade: C				

The working committee recommends support for the following infrastructure projects identified in recent studies:

- New Port of Entry at East Otay Mesa and SR-11
- I-5 Realignment at San Ysidro Port of Entry
- Construction of SR-11 connecting SR-905, SR-125, and the border
- Completion of SR-905
- Completion of SR-125
- Improvements at the San Ysidro, Otay Mesa, and Tecate Ports of Entry
- Improvements to the San Diego and Arizona Eastern Rail Corridor

- Improvements at the Tenth Avenue Marine Terminal, including direct freeway ramp access to Harbor Drive, Harbor Drive/Cesar Chavez intersection improvements, and the 28th Street grade separation
- Improvements at the National City Marine Terminal, including Civic Center Drive, Bay Marina Drive, and the Tidelands Avenue extension improvements.
- Expansion of the B Street Cruise Ship Terminal and ground access improvements.

Identified Funding Needs

The following identifies estimated funding needs at the ports of entry for the period of 2004 to 2010, including supporting infrastructure improvements (highways, roadway, transit, and railroad):

- San Ysidro \$200M
- Otay Mesa \$300M
- Tecate \$20M
- Tenth Avenue Marine Terminal \$250M
- National City Marine Terminal \$8M
- B Street Cruise Ship Terminal \$20M

Sources

- Survey and Analysis of Trade and Goods Movement Between California and Baja California, Mexico, 2003
- San Diego Seaport Ground Access Study, 2003
- California/Mexico Border Briefing, 2002
- Bi-national Border Transportation Planning and Programming Study, 1998
- Ground Access to Port of San Diego International Airport and Seaport Terminals, Draft 1992
- San Diego Regional Chamber of Commerce, 2003
- South County Economic Development Council, 2003
- The U.S. Department of Homeland Security, 2004

Open Space & Parks

B-

Introduction

The San Diego region, including 18 incorporated cities and the County of San Diego, is one of the most rapidly growing regions in the United States. It is anticipated that the population will increase by nearly one million people over the next 25 years to a total population of 3.89 million. Regional growth has direct impacts to the park and open space infrastructure. As housing density and the number of residents increase, the amount of available “backyard” decreases, creating additional demand for park space.

Parks and open space are a valuable component of the region’s infrastructure. They benefit communities by providing residents and visitors with opportunities to renew mind, body, and spirit in healthful outdoor settings. Recreation programs, team sports and other activities improve health and help children build confidence, independent thinking, and self-discipline. Parks improve visual quality within urban areas, provide educational opportunities, and preserve historical and cultural resources. Parks and open space promote livable communities and improve quality of life.

In addition to their value to people, parks and open space are important for the conservation of biological resources and the restoration of valuable ecological functions. In the San Diego region, 75% of native coastal sage scrub habitat and 95% of riparian habitats have been destroyed through land conversion. In addition, over 200 plant and animal species are listed as threatened, rare, sensitive, or candidates for special protection – more than any other comparable land area in the United States. Publicly-owned open space parks and preserves counteract this loss. In addition, the vegetation present within open space parks performs valuable ecological functions, such as improving water quality through the absorption and filtration of urban runoff, and improving air quality by converting carbon dioxide to oxygen. For these reasons, parks and open space are an important element of the San Diego region’s infrastructure.

Purpose

The purpose of this report is to evaluate the condition of the park and open space system in the San Diego region, which includes 18 incorporated cities and the County of San Diego, and award it with a grade (A-F). The park system was analyzed to determine whether or not it is meeting the demand placed by the San Diego region’s growing population and whether it is adequately offering the full spectrum of social and ecological benefits.

Methods

Evaluating criteria were developed and applied to three broad categories of parks and open space within the regional system. The categories include Neighborhood/Community Parks, Regional Parks and Open Space, and Beaches. These types of parks were individually assessed against three evaluating criteria: Condition (the physical quality of the park or open space), Capacity (the ability of the park or open space to meet current and future demand), and Operations (the adequacy of financial and human resources to maintain or improve condition and capacity). For the Capacity criterion, an overall goal of 20 acres of park and recreation land per 1,000 people was used. Of this total, the goal for Neighborhood/Community Parks is 5 acres, and the goal for Regional Parks and Open Space is 15 acres. These ratios are commonly used by local governments for planning purposes. The results of the analysis were then ranked on a grading scale from A to F, and averaged to arrive at an overall grade for the region-wide park and open space system. It is important to note that this evaluation is based on regional data. Consequently, it is not possible to evaluate park and recreation resources on an agency-by-agency basis. Sources for the analysis include SANDAG’s Integrated Regional Infrastructure Public Policy and Financing Strategy (IRIS), 2003, the City of San Diego Park and Recreation Department FY 2005 Proposed Budget, the County of San Diego Department of Parks and Recreation website, and Heal the Bay’s 2004 Annual Beach Report Card.

Grading

Each of the three categories of park and open space (Neighborhood/Community Parks, Regional Parks and Open Space, and Beaches) were graded independently of one another and evaluated according to three criteria: Condition, Capacity, and Operations. A total of four possible points could be awarded per criteria: two maximum points for the existing adequacy of the infrastructure, one maximum point for the adequacy of a long-term plan identifying future needs, and one maximum point for the adequacy of a long-term funding plan in place to meet future requirements. Therefore, a total of 12 points could be achieved per category of park (4 possible points x 3 criteria = total category score). After all three categories of parks were assessed, their total scores were averaged for a final grade (Table 1).

Category Score (Points)	Grade
10 to 12	A
7 to 10	B
4 to 7	C
2 to 4	D
0 to 2	F

Results

Neighborhood/Community Parks: Grade C

This category of park is user-based, relatively small in acreage, and intended to meet the recreational needs of residential communities. Typical facilities include picnic areas, playgrounds, multi-purpose courts, open turf areas, and sports fields.

The existing condition of Neighborhood/Community Parks is good. Generally, park facilities are well-maintained, playground equipment is safe, and landscaped areas are free of trash, weeds, and hazards. While on the surface this would indicate that funds are sufficient to keep neighborhood parks in good condition, it is actually the case that some park agencies in the region are strategically utilizing scarce resources to maintain the most visited parks in good condition. Instead of stretching limited funds over all neighborhood parks with the result of causing system-wide degradation, park agencies close down parks or reduce the hours of recreation facilities, freeing funds to properly maintain the overall good condition of the parks that remain open. As a result of limited funds, the condition of parks remains good, but the capacity of parks diminishes.

The San Diego region has approximately 4,866 acres of active, local neighborhood and community parks. For the region's current population of 2.96 million, there is an average of less than two acres of neighborhood parks per 1,000 residents, falling well short of the five-acre goal. It is estimated that a total of 14,584 additional acres of neighborhood parks would have to be created to accommodate the projected population of 3.89 million by 2030. Therefore, the amount of neighborhood/community park space is deficient to meet the current and future recreational needs of all of San Diego's residents. Although capital improvement programs are in place to help expand the capacity of neighborhood parks, many improvements have been waylaid due to insufficient funding. Existing resources are stretched thin, creating an overall degradation in the capacity of the park system. *Points Scored: 5.5; Grade: C*

Regional Parks & Open Space: Grade B

This category of park is resource-based, and usually much larger in acreage than Neighborhood/Community Parks. It includes wildlife and nature preserves and large parks that are generally free from development. In addition, recreational opportunities such as hiking, camping, mountain biking, and horseback riding are often provided.

Regional Parks and Open Space have sufficient capacity to meet the recreational needs of the San Diego area's residents, and currently exceed the per capita goal of 15 acres per 1,000 population. Even if the local park

agencies stopped acquiring additional regional parks, the current inventory would provide nearly 20 acres per 1,000 population in 2030 – 5 acres more than the goal. Although the capacity of Regional Parks and Open Space is very good, their condition has been impacted by the October 2003 Cedar, Paradise, and Otay fires which burned 15,000 acres of park space and caused the indefinite closure of many camping areas, and hiking, biking, and equestrian trails. It is anticipated that while the burned areas recover, many San Diegans who found recreational opportunities in the large parks and open spaces in the backcountry will switch to open space opportunities, trails, and beaches closer to home, thereby increasing the short-term visitor load and impact to regional open space and Neighborhood/Community Park facilities unaffected by the fires.

With respect to the preservation of biological resources (another important goal of Regional Parks and Open Space), two long-term, innovative, and progressive habitat conservation plans, the Multiple Species Conservation Plan and the Multiple Habitat Conservation Plan, have been developed to meet federal, state, and local requirements for the protection of plant and animal species threatened with extinction. Despite the development of these award-winning plans, and the contribution of open space acquisitions by private and public developments, their implementation requires a regional funding program that has yet to be adopted. The sources of funds necessary to successfully implement the habitat plans are currently not identified in the cities' operating or capital budgets. *Points Scored: 8.5; Grade: B*

Beaches: Grade B

Recent surveys of the San Diego region's beaches have shown them to be in good condition. According to the Heal the Bay's 2004 Annual Beach Report Card, 89% of 100 water quality monitoring stations received good-to-excellent marks. In addition, the water quality in 2004 was improved relative to the three-year average.

In terms of capacity, the acreage of beaches cannot be increased like it can be for neighborhood or regional parks. In fact, beach capacity can actually decrease as the process of erosion removes beach sand from the shore. It is estimated that approximately 20 million cubic yards of clean beach-quality sand will have to be used in beach replenishment projects over the next 20 years. There is currently no revenue source to implement such a beach sand replenishment program. *Points Scored: 8; Grade: B*

Parks & Open Space Overall Grade: B-

Recommendations

Joint-use Facilities. The San Diego region should look to school districts and other partners to renew and expand, whenever practical, joint-use agreements for recreational areas which would allow school yards to be used after school hours by the public and allow schools to take advantage of local agency facilities. This is a useful tool to maximize park space in areas where recreational opportunity is limited.

Transfer Development Rights. The use of this funding tool should be expanded particularly in redevelopment areas. For example, owners of sites designated for public parks would be eligible to transfer or sell development rights to a receiving site. The receiving site would add the development rights from the park site to its own. In this way, a private owner is not denied the return that would be gained by developing his property, and a park space is secured.

Development Impact Fees and Facilities Benefit Fees. These funding tools have been successful in areas experiencing significant growth and should continue to be employed. They are special fees applied to new developments, set in proportion to the number of planned residential units. These fees are applied to the acquisition and construction of new parks. They are not allocated to their long-term maintenance.

Long-term Maintenance Fee. A long-term maintenance fee could be useful in supplementing the Development Impact Fee and Facilities Benefit Fee. The fee would be used to fund long-term maintenance of new and existing parks.

New Classifications of Parks for Urban Environments. Rooftop parks, youth and teen-oriented parks, dog parks, plazas, and pocket parks would be useful especially in dense urban areas. They provide recreational opportunity in areas where land is scarce and expensive. Dog parks could be sited in underutilized corners, remnants, or otherwise unusable pieces of property for the benefit of urban residents who own pets. Teen centers, skate parks, and other facilities oriented to urban youth would provide enrichment opportunities for youth outside of school.

School Facilities

C+

Forty three K-12 school districts educate nearly a half million San Diego County schoolchildren. Five community college districts provide post high school opportunities with three large universities and several smaller colleges, universities, specialty schools and extension programs offering a variety of university and post-graduate degree programs.

Funding of educational infrastructure remains inadequate. Although based on limited responses to a self-assessment survey, an average grade of C+ for the K-12 school districts reflects the funding challenges in public education. Some recent victories achieved through passage of various school bonds are overshadowed by ever aging infrastructure, the states funding woes, and an apparent lack of commitment on the part of districts to adequately fund annual maintenance needs.

Introduction

With a total population of approximately 2.5 million, San Diego County supports multiple educational institutions that teach children starting at the pre-school grade level through post-graduate adult educational programs. The kindergarten through grade twelve (K-12) education is generally provided through the 43 school districts that educate the nearly half million schoolchildren. These are typically Union districts that are comprised of a specific grade category like high school only or they are Unified districts that include pre-school through grade twelve instruction. The districts range in size from a couple of schools and a student population of 300 to 180 schools and 136,000 students. A growing number of charter schools – both “arm-of-the-district” and private and some home schooling make up the balance of the K-12 educational institutions.

Five community college districts provide post high school opportunities for students who may not be prepared or may not desire to enter directly into a four-year college program. San Diego is also fortunate to have three large universities and several smaller colleges, universities, specialty schools and extension programs that offer a variety of university and post-graduate degree programs.

The Evaluation Approach

Assessing the status of San Diego County educational infrastructure was conducted on two separate occasions by two sets of “assessors” using two distinct survey tools. In each case only K-12 infrastructure was addressed.

The first survey, conducted in 2003 utilized a survey data sheet that required a self-assessment by the respective district facilities official. The survey assessed the infrastructure itself using categories such as, substructure, shell, interior and equipment, and furnishings. Based on a limited number of returned surveys an aggregate grade of C+ was derived.

The second survey was conducted in early 2005. It was more encompassing in the breadth of survey questions. In addition to the current condition of the infrastructure, it requested a self-assessment on such qualities as capacity, operation, and asked for feedback concerning future planning and funding. The second survey also had a limited number of returned assessments but represents about one third of total number of schools in the county. The second group of survey assessments also yielded a grade of C+ for the condition of schools infrastructure.

ASCE SCORE CARD: District - San Diego Unified

Statistical Data: Requested data is for Fiscal year '04-05;
 Average ADA 136,5000 Total Square Feet 14,000,000
 Total Gross Revenue \$1.05 billion
 Annual Maintenance Funding \$39.10 million

Condition

– Current: Poor-0, Fair-1, Good-2	Condition: Fair	1.0
– Plan: if plan in place receives up to 1.0 point	Plan: partial	0.7
– Funding: if funding in place receives up to 1.0 point	Funding: partial	0.6
	Condition Score =	2.4

Capacity

– Current: Poor-0, Fair-1, Good-2	Capacity: Fair	1.6
– Plan: if plan in place receives up to 1.0 point	Plan: partial	0.9
– Funding: if long term funding in place receives up to 1.0 point	Funding: partial	0.6
	Capacity Score =	3.1

Operation

– Current: Poor-0, Fair-1, Good-2	Condition: Good	1.1
– Plan: if plan in place receives up to 1.0 point	Plan: partial	0.7
– Funding: if funding in place receives up to 1.0 point	Funding: partial	0.6
	Operations Score =	2.4

Category Score = 7.9 Grade C+

Conclusion

Funding of educational infrastructure remains inadequate. Although based on a limited response to the self-assessment survey, an average grade of C+ is representative of the funding challenges in public education. Recent victories achieved through passage of various school bonds throughout the county are overshadowed by ever aging infrastructure, the states funding woes, and an apparent lack of commitment on the part of districts to adequately fund annual maintenance needs.

Storm Water Collection and Treatment Systems



Storm water runoff is an integral part of the hydrologic cycle. In the urbanized areas of San Diego County, this runoff flows off homes, buildings, and streets. Through a vast network of storm drain systems, flood control channels, and natural drainage courses the flows are conveyed mostly untreated to rivers and eventually, the ocean. In some cases, urban runoff is directly discharged to the bays and beaches.

As the flows travel through the urban areas, pollutants such as pesticides, herbicides, fertilizers, cigarette butts, litter, and pet waste contaminate it. These pollutants are transported with expediency and efficiency to the ocean through storm drain systems that were designed for flood protection but not pollution reduction.

The various storm water collection systems in the San Diego region are constructed and maintained by 21 local jurisdictions. In some cases, flows from one jurisdiction are conveyed to another before reaching its ultimate discharge point. Since 2002, each jurisdiction has had a storm water management program and a storm water collection system maintenance program. In some cases, these programs are intertwined. In other cases, they are separate. Regardless of their program structure, each jurisdiction is required to address urban storm water runoff and assess its capability of reducing or eliminating the pollutant loads associated with the urban runoff. This can be partially achieved by reducing pollutants at their source through measures such as erosion control, housekeeping, and materials management or placing structural treatment facilities that are integrated with the existing storm water collection system. At this time, such activities and facilities have been limited to treatment measures specifically targeting storm water pollution for new developments over the past several years.

Storm Water Collection and Treatment Systems Final Grade

In an effort to determine the current state of the storm water collection and treatment systems, a survey questionnaire was distributed to 18 municipalities, Port of San Diego, San Diego International Airport, and the County of San Diego. The survey focused on the condition, capacity, and operation of existing storm water collection and treatment systems, as well as plans for system improvements and long-term funding. The survey did not address the flood control capabilities of these systems since that was beyond the scope of this report. In addition, data regarding storm water capital improvements and storm water management program

costs were analyzed. The projected annual expenditures for storm water treatment facilities were assessed for a five-year period. Finally, the fiscal year 2001-2002 Jurisdictional Urban Runoff Management Program Annual Reports for several municipalities were reviewed for data pertaining to treatment and collection facilities.

Based on the information gathered and analyzed, the overall grade for San Diego County storm water collection and treatment infrastructure is a C-. Despite the fact that 18 municipalities, Port of San Diego, International Airport, and the County of San Diego all have requirements for best management practices (BMPs) for a variety of activities and new development, there are minimal systems in operation that address water quality. Although adequate funding for regional or watershed-based water quality infrastructure to address existing development appears to be years away, some municipalities are developing jurisdictional funding programs. However, as the region continues to grow, the gap between infrastructures in place and treatment needs will continue to threaten San Diego's watercourses, bays and beaches.

Without proper planning, implementation, and long-term funding, the quality of runoff from storm events will continue to adversely affect the bays, rivers, and beaches. The following table summarizes the stormwater collection and treatment grades.

Category	Category Score	Component Score	Grade
Condition	5	2	C
Capacity	7	2	C
Operation	3	1	D
Overall Grade			C-

Conclusions and Recommendations

Storm water collection and treatment infrastructure is widely needed in this region. Current numbers of functioning infrastructure are very low. This correlates to the fact that the region's storm water management program, as a whole, is still evolving. The region has developed a progressive approach to addressing water quality, but has yet to implement and provide long-term funding for a watershed solution that treats and reduces pollutant loads. Since, the overall regional effort towards addressing storm water runoff quality is relatively new, this is a good opportunity to implement an efficient and effective infrastructure program.

One certainty regarding the regions efforts to address water quality issues is that it cannot step back and reduce its efforts. The quality of life in the region is interconnected with the quality of water. Improving the water

quality will require additional infrastructure. The Storm Water Collection and Treatment working committee recommends the following to improve the grade of storm water collection and treatment infrastructure:

- Development of a regional master plan that matches pollutants of concern with the watershed.
- Provide funding to build and manage treatment BMPs. \$150 million plus \$100 million for operation and maintenance cost.
- Development of a water quality monitoring program in concert with treatment BMPs.

Sources

San Diego Association of Governments, Regional Comprehensive Plan, 2004

City of San Diego, Urban Runoff Management Plan, Fiscal Year 2002 Annual Report

City of Carlsbad, Stormwater Pollution Protection Program Regulatory Fee Study Report, 2003

County of San Diego, Stormwater Financing Alternatives Report, October 2002

County of San Diego, FY2001-2002 Jurisdictional Urban Runoff Management Program Annual Report, 2003

US EPA, Preliminary Data Summary of Urban Storm Water Best Management Practices, EPA-821-R-99-012, 1999

Surface Transportation

C

Introduction

This report card covers the following aspects of San Diego's surface transportation infrastructure:

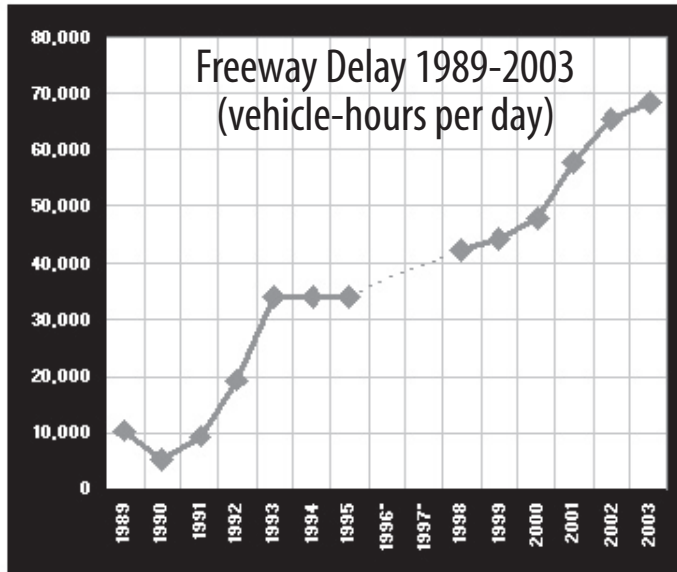
- Highways
- Local Streets and Roads
- Transit
- Intelligent Transportation Systems (ITS)

While there are other important elements of the overall surface transportation infrastructure, such as goods movement and bicycle paths, these are the categories of facilities that most affect the traveling public in the region on a daily basis.

Background

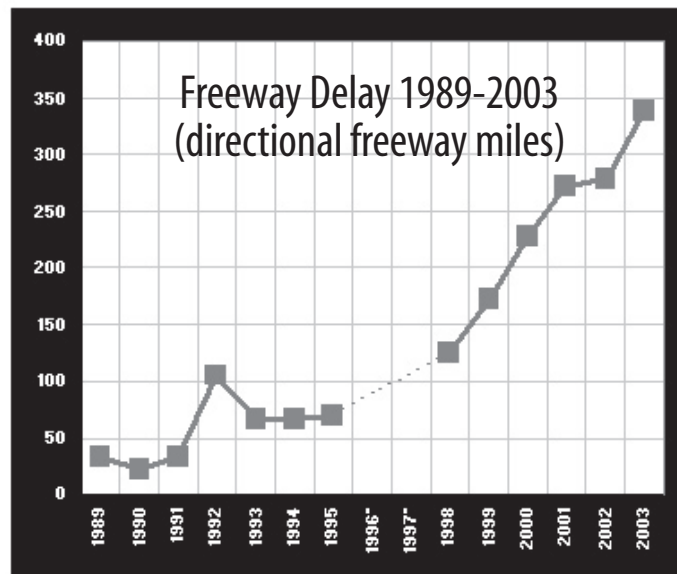
Until the 1990s, the San Diego region enjoyed a transportation infrastructure that by and large met or exceeded the demands of the traveling public. Highway engineers in the mid 20th century had the foresight to plan and build eight-lane freeways using concrete pavements, resulting in a highway system with long-lasting capacity and relatively low maintenance costs. Subsequently, major highway projects such as State Routes 52, 54, 56 and 125 (largely funded through the local half-cent sales tax program known as TransNet) have come on line, increasing the capacity of the freeway network. As an example, the completion of State Route 125 (between routes 52 and 54) is estimated to save the typical commuter on Interstate 8 nearly 50 hours annually. Meanwhile, the region's local street network has expanded along with new developments, and the bus and rail transit systems have continued to grow to serve more and more customers.

In the 1990s, it became evident that the region's population and associated transportation demand were growing faster than the road/highway system could be expanded with limited funding and expanded environmental regulations. The past decade has seen dramatic increases in delay on some portions of the highway and local street system during the traditional peak hours of AM and PM commute. Perhaps most alarming is the *rate of increase* of congestion. For example, between 2002 and 2003, the average delay experienced by drivers on local freeways increased by 5% and the number of congested freeway miles increased by 22%¹ (see charts below).



Source: California Department of Transportation, District 11

Freeway delays and congested freeway mileage are both climbing steeply; the number of miles of congested freeways in the San Diego region doubled in just four years, including a jump of 22% from 2002 to 2003.



Source: California Department of Transportation, District 11

*Data not available for 1996 and 1997

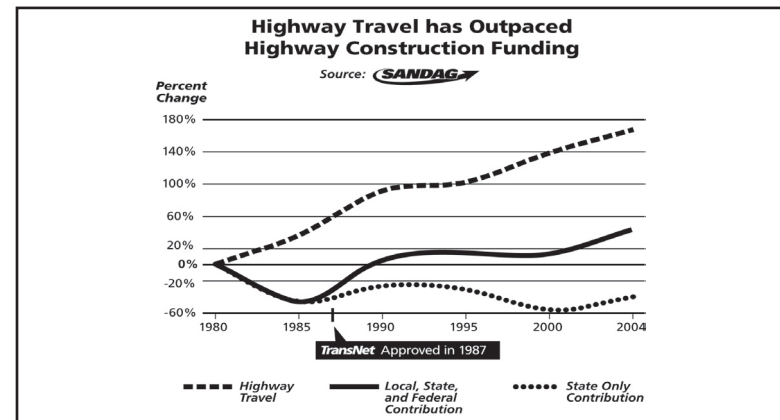
In the past few years, congestion in some areas has even become commonplace outside the traditional peak hours, extending into midday periods on both weekdays and weekends. The region's population is expected to continue expanding, from roughly three million today to four million by the year 2030, so demand for highways will surely continue to rise.

At the same time as transportation demand has outpaced transportation system improvements, the existing facilities and equipment have continued to age while the resources to maintain and operate them have dwindled. For example, as part of this study 45% to 50% of all local streets and roads were judged to be in poor to fair condition, i.e. needing repair. In the categories of highways, local streets/roads, and transit there are serious shortfalls in maintenance and operations funding today and the shortfalls are projected to get even worse.

Funding Shortfalls

A "perfect storm" of funding problems hit the region in 2003 and 2004. These problems ranged from the federal government's seeming inability to pass a new transportation funding bill (TEA-21 expired in 2003) to the State's budget crisis and a variety of local agency budget problems. These factors conspired to create a significant funding shortfall that greatly diminished the region's ability to either build new projects or maintain and operate existing facilities and equipment.

The graph below shows trends in highway travel and funding levels between 1980 and 2004.² The graph indicates that the TransNet local sales tax program (approved in 1987) has made a significant contribution to funding levels, but they still remain well below what is needed to keep pace with the growth in highway travel. State funding in particular has never recovered to even its 1980 level, and remained approximately 40% below that benchmark in 2004.



To look at the State funding picture differently, the State of California Department of Transportation (Caltrans) Funds Estimate averaged \$1.9 billion for seven time periods beginning in the years 1990, 1992, 1994, 1996, 1998, 2000 and 2002. In 2004, the funds estimate dropped dramatically to just \$693 million, a little more than one-third of the long-term average.³

While funding has diminished, project costs have skyrocketed due to a variety of factors. Agencies wanting to construct capital projects face ever-increasing regulations, environmental restrictions, and litigation. The costs of land, construction materials, and other construction expenses (labor, insurance, fuel, etc.) for these projects have risen much faster than inflation. A recent study completed by the San Diego Association of Governments (SANDAG) showed that the long-term construction cost inflation rate of 2.6% (1982-2002) has nearly tripled since 2002. Some of these same factors increasing the cost have greatly lengthened the typical schedule to get a public works project constructed.

The funding picture has brightened significantly with the voter-enacted 40-year extension of the TransNet local half-cent sales tax program and with passage of the \$286 billion federal transportation legislation entitled SAFETEA-LU. Much of California's share of this new federal money will be distributed through various State funding programs.

So what does the future of transportation funding hold in store? Despite these encouraging funding improvements, based on everything we know today the challenges are still massive. San Diego's transportation infrastructure is already stretched thin and the region faces a funding shortfall of \$25 billion between now and 2030.⁴ It would take another major funding source, such as a second local sales tax program, to make up this shortfall.

The Future

Demands on the transportation system grow, available funding lags behind the region's needs, energy prices continue to be volatile, and tragic events such as Hurricane Katrina remind us of the critical importance of infrastructure. Despite these challenges, there are bright spots in the San Diego region.

Urban planning efforts are underway to limit sprawl, promote mixed-use developments, and build density near transportation corridors. The region's transportation planners are bringing new tools to the fight, ranging from high-tech Intelligent Transportation Systems (such as smart, interconnected traffic signals that improve traffic flow along arterial streets) to freeway "managed lanes" with flexibility to increase the number of lanes in the peak commute direction. These lanes will be shared by carpoolers, express

buses (bus rapid transit or BRT), and toll-payers. Construction is already underway to implement managed lanes on I-15, and they are being studied for other major corridors such as I-5, I-805, and State Route 52.

Another bright spot is the region's transportation planning agency. SANDAG has prepared a comprehensive transportation plan for the region known as *Mobility 2030*. This plan was prepared in cooperation with Caltrans, North San Diego County Transit District (NCTD), the Metropolitan Transit System (MTS), and the various other jurisdictions in the region, including other transit operators, 18 local cities, and the County of San Diego, among others.

Mobility 2030 is thorough and addresses all modes of transportation. The solutions contained in the plan are varied and wide-ranging, appropriately so for the challenges the region faces. The plan recognizes that we cannot simply "build our way" out of congestion. Other strategies must be implemented for maximum effect. For example, demand management is an important strategy in the plan to reduce trips on the transportation system during peak periods and encourage alternatives to driving alone (e.g., transit, carpooling, vanpooling, biking, and walking).

In 2004 SANDAG completed the *Regional Comprehensive Plan (RCP)*. With this new plan SANDAG has successfully linked land use to transportation planning, an approach that should bear fruit over time in terms of reduced transportation demand and improved ability to provide transit services. The RCP recognizes significant transportation funding shortfalls. If additional revenue sources do not become available, the RCP predicts that the region's transportation system will not be able to meet desired operational standards. Securing funding has been established as a top priority action by the RCP.

Even with new approaches and thorough, well thought-out plans for the future, not much is possible without new funding sources to make up the projected \$25 billion shortfall.

Summary of Grades

This report card was prepared by a committee of transportation professionals from a variety of specialties, representing both public agencies and the private sector. The committee examined the region's highways, local streets/roads, and ITS with regard to condition, capacity, and operation. For transit, these three factors were condensed into condition and system efficiency. For all four types of facilities, the grading was influenced by whether or not there was a long-term plan and funding to implement the plan.

Highways

Condition, Capacity, and Operations: Highway pavement conditions are good, with less than 10% of the region's freeways in need of repair; other aspects of freeway condition such as landscaping maintenance are badly in need of more resources. In terms of capacity, congestion is already significant and increasing at a rapid pace; for example, there was a 22% increase in congested freeway miles in one recent year alone. In the operational arena, San Diego is ahead of many other urban areas with regard to ramp meters, traveler information systems and other high-tech tools that help make the most of the freeway network. Still, these systems are incomplete and the pace of new operational projects has nearly stopped.

Funding and Plan: In terms of funding, in all three areas – condition, capacity, and operations – there are great needs and limited funding. *Mobility 2030* generally provides a long-term plan for highways under different funding scenarios.

Grade: The Highways category was given an overall grade of C. This grade could improve to a B with an additional funding source to help fill the projected shortfall.

Local Streets/Roads

Condition, Capacity, and Operations: 45% to 50% of publicly maintained local streets and roads were judged to be in poor to fair condition, requiring repairs. Where roadways are under private maintenance (for example, where maintenance is paid through homeowners associations or assessments) the conditions are often better. Capacity is generally good, but there are areas where congestion cripples major arterials that provide critical links to hospitals, employment centers, etc. and there is a large economic impact of this congestion. In terms of operations, many traffic signals are not interconnected for proper timing; different jurisdictions' systems often cannot "talk" to each other; and planned Intelligent Transportation Systems projects have yet to be implemented.

Funding and Plan: Funding is short for all aspects of local streets/roads, although it has improved substantially with passage of the TransNet extension and implementation of state Proposition 42. In terms of a long-term plan, local agencies have capital improvement programs for their jurisdictions; *Mobility 2030* provides an overall framework; and other SANDAG efforts, such as the *Regional Comprehensive Plan* (RCP) approved in 2004, provide strong guidance for local street and road planning. However, these plans identify significant funding shortfalls and make the search for additional funding a top priority.

Grade: The Local Streets/Roads category was given an overall grade of D+. This grade could improve to a C+ with an additional funding source to help fill the projected shortfall.

Transit

Condition and System Efficiency: Throughout the region, the fleet age for buses and rail vehicles is considered average when compared with other metropolitan areas; however, some vehicles such as the original red trolleys are now in their 20s and have driven over a million miles. The bus and rail facilities (bus shelters, track, stations, signaling equipment, power systems, etc.) are significantly older than the fleets, and resulting maintenance requirements are high. In terms of system efficiency, San Diego's transit system is slightly smaller than the average for similar metropolitan areas; nonetheless, the system compares favorably when judged by other benchmarks such as ridership per capita, productivity of services, and subsidy per passenger. The trolley system was recently expanded with the completion of the Mission Valley East trolley extension, resulting in record levels of ridership.

Funding and Plan: As with other aspects of the infrastructure, there is a large funding shortfall; moreover, this is a uniquely urgent problem for transit. It has traditionally been easier to secure funding for capital projects than for operations and maintenance. Since operation of the transit system requires subsidizing passengers, recent funding declines have led to reductions in service, and will likely continue to do so. On a positive note, the TransNet extension does include operational funding for new facilities that are built using TransNet funds. *Mobility 2030* generally provides a long-term plan for transit under different funding scenarios. Within the city of San Diego, MTS is also undergoing an analysis of transit services (called the *Comprehensive Operational Analysis*) in an effort to make maximum use of limited resources.

Grade: The Transit category was given an overall grade of C. This grade could improve to a B with an additional funding source to help fill the projected shortfall.

Intelligent Transportation Systems (ITS)

Condition, Capacity, and Operations: Existing ITS deployments should be evaluated by the three areas presented above, Highways, Local Streets/Roads and Transit:

Highway ITS investments have been ongoing for several years, with development of a central highway management computer system and field devices for vehicle detection and traffic cameras receiving primary focus. These efforts are ongoing, and although certain

computer elements are nearing end of life, the current deployment plans are considered adequate. The need for additional field devices (including changeable message signs) and system integration will play an increasing role as ITS plays an increasing operational and customer information role.

Local Streets/Roads ITS investments have focused on the deployment of distributed traffic signal management systems that the various jurisdictions could utilize to coordinate signal-timing plans and improve traffic flow. There remains a considerable need for deploying and connecting field devices such as traffic signals, traffic cameras and vehicle detection equipment.

Transit ITS investments have perhaps been the most significant in recent years. The region has been aggressive in deploying technologies that provide real-time operations and performance monitoring; promote coordinated operations; simplify fare payment; and provide real-time customer information. As the initial deployments deliver on these benefits, additional funding will be needed to expand the systems to all transit operations in the region.

The region is focusing on deploying the systems for these areas in an integrated and cost efficient manner with an important goal of delivering transportation data to system users (such as the dial 511 system) and to public safety agencies to better support their functions. The current ITS deployment is not comprehensive or integrated and represents only a fraction of the original vision. In terms of operations, those elements that are in place are demonstrating value and should significantly benefit the operations of the transportation system.

Funding and Plan: There is no designated funding source for ITS program management or implementation, and substantial additional investment is required if the region is to realize all the benefits the existing projects represent. Extensive ITS planning has been undertaken, and San Diego is generally recognized as a leading region in ITS planning for technology deployments.

Grade: The ITS category was given an overall grade of C-. This grade could improve significantly with additional funding for program management, field elements, communications, and system expansions. Expansion of the intelligent transportation systems and infrastructure would also benefit the other facility grades, since the main objective of ITS is to improve the operational efficiency of transportation facilities.

Recommendations

Based on the information gathered during the preparation of this report card, ASCE makes the following recommendations related to transportation infrastructure:

- ❑ Continue to support critical funding legislation, including:
 - Support state legislation to require gas tax revenues to be used for transportation purposes rather than going into the state's general fund.
 - Over time (assuming oil prices return to historical levels) support legislation to increase state and federal gas taxes to keep pace with inflation.
 - Support the establishment of another long-term, reliable local funding source for transportation infrastructure and transit subsidies, in addition to the recent voter-approved extension of the TransNet program.
- ❑ Support implementation of *Mobility 2030* (the Regional Transportation Plan) and the *Regional Comprehensive Plan* as funding becomes available. These plans address the region's needs for highways, local streets/roads, and transit.
- ❑ Encourage SANDAG and local agencies to continue developing regional strategies and plans for the local street system in order to achieve important goals such as:
 - Expanding the street network capacity
 - Closing existing gaps in the street network
 - Preventing communities from creating new gaps in the network
 - Increasing operational efficiency
 - Improving pavement conditions
- ❑ Encourage incorporation of ITS field elements as part of modifications/enhancements to highways/roads; assist SANDAG with promoting public recognition of the importance of ITS; and work toward finding a dedicated funding source for further ITS deployments and ongoing maintenance and operations needs.

Footnotes

¹ Data for the 2004 increase are still pending, but (per Caltrans) are expected to show approximately 5% increases for both of these statistics.

² Courtesy of SANDAG, *2005 State of the Commute Report*

³ The Funds Estimate (FE) is established every two years for the following five-year period. It should be noted that the FE is a volatile number and ranged from (\$574 million) to \$4.6 billion for the seven periods mentioned. In 2002 the FE was \$3.6 billion, so the drop to \$693 million in 2004 was quite precipitous.

⁴ *Mobility 2030*, SANDAG, April 2003, Table 4.5. The \$25 billion shortfall is based on the “Reasonably Expected” funding scenario. SANDAG is currently working on updates to the funding scenarios, but as of this report no new estimate of the funding shortfall is available.

Wastewater Systems

B-

The safe and reliable collection, treatment and disposal of wastewater are essential elements in protecting public health and the environment. Thirty-nine (39) agencies and cities operate and maintain approximately 7,000 miles of sewer pipeline, hundreds of pump stations and 30 treatment facilities throughout the San Diego region. Most cities in the region have a wastewater department or division that operates and maintains a sanitary sewer collection system. Some of these cities treat their own wastewater while others transport the wastewater to treatment plants in adjacent cities or agencies.

The overall grade for the wastewater systems has not changed from the initial report issued in October 2004. However several factors never before considered threaten our region’s wastewater systems. These factors include significant increases in material and equipment costs due to rising energy costs, increased security and safety concerns, and a lack of capital improvement funding for City of San Diego projects. Although the impacts from these factors are difficult to ascertain, the agencies and cities in the region indicated that they expect to complete the projects and efforts identified in their master plans. Further, the City of San Diego stated that its Capital Improvements Program, although reduced, is meeting its needs as demonstrated by an 80% decrease in sanitary sewer overflows since 2000.

Collection Systems Sub-Grade Determination

The wastewater committee received responses from 20 collection systems, representing more than 5,500 miles of sewer pipeline and 241 lift stations. This is about 80% of the system in the region. The table below summarizes the collection system responses.

Category	Adequacy	Long Term Plan	Funding	Score
Condition	0.0	0.8	0.6	1.4
Capacity	2.0	0.8	0.6	3.4
Operations & Maintenance	1.0	0.8	0.8	2.6
Total				7.4
Average				2.47 = C+

Based on the respondents’ answers, the physical condition of most of the sewer pipelines is poor. Conversely, many respondents said that their pipes and pump stations have excellent or good capacity, indicating the collection systems are generally capable of handling the current flows. Respondents rated the operations and maintenance of their collection systems as fair on the verge of poor. Generally, there is adequate staff to complete the tasks, but there is a lack of adequate tools, sufficient equipment and accurate records.

Finally, most agencies have some form of a long term plan. Funding for operations and maintenance of the collection systems is good, but available funding to improve the condition and capacity is fair.

Treatment Facilities Sub-Grade Determination

The committee received responses from 22 treatment facilities, with an average daily treatment capacity of 266 million gallons of wastewater per day (MGD), and an ultimate design capacity of 370 MGD, generated by more than an estimated 3 million people. This represents just over 90% of the region’s total treatment capacity. The table below summarizes the treatment facility responses.

Category	Adequacy	Long Term Plan	Funding	Score
Condition	1.8	0.8	0.7	3.3
Capacity	2.0	0.8	0.7	3.5
Operations & Maintenance	1.0	0.8	0.7	2.5
Total				9.3
Average				3.10 = B

Based on the respondents’ answers, their process facilities, tanks, channels, outfalls and equipment are operable, but need minor to moderate improvements to make the physical condition of the facilities adequate. Respondents rated the capacity of their treatment facilities as good, indicating that most facilities can process the projected flows and properly discharge them to land or ocean outfalls. Further, they consider the operations and maintenance of the facilities fair. Many indicated their staffing levels are insufficient to keep up with operations, maintenance and laboratory functions. However, nearly all of the agencies are able to remain in compliance with the regulatory requirements for effluent discharge and air quality. Finally, most agencies have some form of long term plan. Funding to improve the capacity and condition of the treatment facilities, and to continue to maintain the treatment facilities, is between fair and good.

Conclusions and Recommendations

Averaging the scores results in an overall score of 2.785, or a B-. Since this is an average grade, the entire wastewater infrastructure is not at a B-level. Each agency and city should develop and implement its own plan to address its own needs. The wastewater working committee recommends that agencies and cities:

- Develop or update a long term plan;
- Incorporate Capacity, Management. Operation and Maintenance (CMOM) and General Accounting Standards Board (GASB-34) asset management requirements into the plan;

- Implement a regular inspection and assessment program, particularly for pipes;
- Identify and secure revenues dedicated to wastewater treatment facilities and collection systems; and
- Support initiatives to develop funding sources from local, state and federal levels for improvements to the wastewater infrastructure systems.

Most cities and agencies in the San Diego region have some form of wastewater master plan, ranging from 5 years to 20 years. Cities and agencies plan to spend about \$5 billion on wastewater infrastructure over the next 5 years. Approximately \$2.8 billion will be spent on operations and maintenance of the facilities while \$2.1 billion will be spent on planned improvements. Compliance with new permit requirements and regulations, such as GASB-34 and CMOM, compels unplanned improvements. Many of these improvements, because they are not clearly known, are not included in the agencies’ long term plans, and are not likely included in projected sewer fund needs. Funding sources, such as a national clean water trust fund similar to programs for highway and airport expenditures, should be explored to improve our sewer systems and meet the needs of the residents of the San Diego region.

Sources

- Survey responses from San Diego region wastewater agencies
- San Diego Association of Governments
- Regional Comprehensive Draft Plan, 2003
- San Diego Regional Water Quality Control Board
- Water Environment Federation, “National Clean Water and Drinking Water Investment Gap,” Wastewater Professional, January 2004.

Water Supply

B

Drinking Water

Safe and reliable drinking water is vital to public health and economic growth. In San Diego County, most developed areas lie within the service area of the San Diego County Water Authority (SDCWA). SDCWA is a regional agency that historically has raw and treated water from the Metropolitan Water District of Southern California (MWD). SDCWA in turn sells the water to its member agencies, which deliver water to retail customers. In addition to MWD water, some member agencies maintain other sources of supply, such as local surface water or groundwater resources. The member agencies distribute the water to residential, industrial, and commercial customers through over 8,000 miles of pipeline.

Water Supply

SDCWA is responsible for securing imported water and conveying it to its member agencies. Some member agencies rely entirely on imported water, while others have alternative sources such as local surface water or groundwater. However, these local sources supply only about 10 percent of drinking water needs for the San Diego region. In addition, some agencies use recycled water to meet some of their irrigation demands.

The supply of imported water is generally considered reliable. MWD has constructed storage reservoirs to provide water in case an earthquake or other event disrupts deliveries through the aqueducts and canals that bring water from the Central Valley and the Colorado River. SDCWA is also proceeding with improvement projects that provide emergency storage and increase flexibility in conveying water to member agencies.

Water Treatment

Some SDCWA member agencies purchase only treated water from SDCWA and do not maintain their own treatment facilities. Others maintain one or more water treatment plants. These plants were rated in terms of their hydraulic capacity, and current operational issues.

Based on the responses received, the treatment plants were rated “Excellent” or “Good”. The water produced by these treatment plants consistently meets federal and state drinking water regulations. The plants have an on-going maintenance program for buildings, structures, and mechanical equipment. In general, staffing levels were considered “Good”.

An area noted for improvement was the master planning of future improvements to the treatment plants. Future population growth, increasing water demands, and changes in technology will require future

expansion and modifications to many treatment plants. It is important to adequately plan for these improvements and set aside adequate funds.

Water Distribution

Each member agency maintains a distribution system to deliver water to retail customers. In total, these systems include more than 8,000 miles of pipeline and more than 300 storage tanks. The systems also include pumping stations, hydrants valves, and other facilities that must be maintained. The condition of these systems is generally considered “Good”. Staffing levels and funding for maintenance were considered “Fair” to “Good”.

Recommendations

The condition of water treatment and distribution facilities varies among the member agencies. In general, the condition and hydraulic capacity of these facilities are considered “Good”. It is important that water agencies continue to adequately fund the maintenance of existing facilities and equipment. Most agencies have a master plan that outlines future improvements and identifies funding sources. These master plans, both for treatment plants and distribution systems, should be kept up-to-date, and capital reserves should be established as needed for future improvements.

References

Survey of Member Agency Water Rates, prepared by San Diego County Water Authority; Survey response from water agencies.

What You Can Do

This guide offers solid proof that much more needs to be done to ensure adequate infrastructure for our region. It is now up to concerned citizens like you, who understand the economic and quality of life benefits of a healthy infrastructure, to push for action.

You have seen the big picture of what's happening in San Diego County. Here are some steps you can take help sustain and improve our infrastructure:

- Learn all you can about the infrastructure problems in your area.
- Contact the California Department of Transportation, your county and city governments and other sources to learn about plans for ensuring adequate roads, sewers, parks and water systems.
- Work to help pass local bond issues to repair, replace and expand your roads, parks, water systems, and other infrastructure.
- Express your concern to public officials, such as city managers, council members, and supervisors. Ask them how they plan to solve infrastructure problems. Urge your neighbors to support your cause.
- Regularly attend meetings held in your community about pressing infrastructure problems.
- When you see a problem, find out what level of government has jurisdiction over it. Sometimes various levels of government deal with different aspects of the same problem.
- Search the Internet. Agencies at all levels of government now have Web sites that list laws and regulations that pertain to your issue of concern. These Web sites can be a helpful link to other government and advocacy group resources. If you know of an interest group that deals with the area you're interested in, visit its site.
- Ask business groups, such as your Chamber of Commerce, to examine the infrastructure in your community and its effect on local businesses, employment and the economy.
- Write letters to the editor of your newspaper, your state representatives and members of Congress, expressing your concerns and opinions on infrastructure.
- Volunteer for, or organize, citizen advisory committees dealing with your community's infrastructure issues.

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- Support local, state and federal officials who understand and are committed to infrastructure preservation. Ask them to make infrastructure an election issue, just as they would education, crime or health care.
 - Talk to civil engineers in your area about solutions and needs.

Acknowledgements

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About ASCE American Society of Civil Engineers, San Diego Section

The American Society of Civil Engineers enhances the safety and welfare of humanity by advancing the science and profession of engineering.

The Society offers continuing education courses and technical specialty conferences; develops technical codes and standards for safer buildings, water systems, and other civil engineering works; publishes technical and professional journals, manuals, and a variety of books; works closely with Congress, the White House, and federal agencies to build sound national policy on infrastructure and engineering issues; and supports research of new civil engineering technology and materials.

Founded in 1852, ASCE has more than 125,000 members worldwide and is America's oldest national engineering society. The Society recently celebrated its 150th anniversary.

The San Diego Section of ASCE was formed in 1915. It has nearly 1,629 members covering the counties of San Diego and Imperial Valley. Regular meetings of the Section members are held and technical groups have been formed to serve the needs and interests of members in the specialized fields of construction, geotechnical, pipelines and transportation. A special group has been established to provide a forum for younger members as well.