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# MEETING NOTICE AND AGENDA

**MEMBER AGENCIES**

- Cities of
- Carlsbad
- Chula Vista
- Coronado
- Del Mar
- El Cajon
- Encinitas
- Escondido
- Imperial Beach
- La Mesa
- Lemon Grove
- National City
- Oceanside
- Poway
- San Diego
- San Marcos
- Santee
- Solana Beach
- Vista
- and
- County of San Diego

**ADVISORY MEMBERS**

- Imperial County
- California Department of Transportation
- Metropolitan Transit System
- North County Transit District
- United States Department of Defense
- San Diego Unified Port District
- San Diego County Water Authority
- Southern California Tribal Chairmen's Association
- Mexico

## SHORELINE PRESERVATION WORKING GROUP

The Shoreline Preservation Working Group may take action on any item appearing on this agenda.

Thursday, December 6, 2007

11:30 a.m. to 1 p.m.

SANDAG, 7th Floor Conference Room  
 401 B Street, Suite 800  
 San Diego, CA 92101-4231

Staff Contact: Shelby Tucker  
 (619) 699-1916  
 stu@sandag.org

### AGENDA HIGHLIGHTS

- SAN DIEGO REGIONAL BEACH SAND REPLENISHMENT PROJECT FEASIBILITY STUDY COST-BENEFIT ANALYSIS
- POTENTIAL REGIONAL INFRASTRUCTURE INVESTMENTS
- STATUS AND NEXT STEPS FOR POTENTIAL REGIONAL BEACH SAND REPLENISHMENT PROJECT

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# SHORELINE PRESERVATION WORKING GROUP

Thursday, December 6, 2007

ITEM #	RECOMMENDATION
1. WELCOME AND INTRODUCTIONS	
2. PUBLIC COMMENTS/COMMUNICATIONS	COMMENTS
<p>Members of the public will have the opportunity to address the Shoreline Preservation Working Group (SPWG) during this time.</p>	
+3. SUMMARY OF THE JULY 12, 2007, MEETING	APPROVE
<p>The July 12, 2007, meeting summary is attached for Working Group review and approval.</p>	
+4. SAN DIEGO REGIONAL BEACH SAND REPLENISHMENT PROJECT FEASIBILITY STUDY COST-BENEFIT ANALYSIS	INFORMATION
<p>Dr. Philip King will present the findings from the cost-benefit analysis prepared as a component of the Feasibility Study submitted to the California Department of Boating and Waterways. A copy of the cost-benefit analysis (Economic Considerations) is attached for your review. Copies of the Feasibility Study will be provided upon request and are posted to the SANDAG Web site, <a href="http://www.sandag.org/shoreline">www.sandag.org/shoreline</a>.</p>	
+5. POTENTIAL REGIONAL INFRASTRUCTURE INVESTMENTS	DISCUSSION
<p>The SANDAG Board of Directors has met to discuss potential infrastructure investments several times this year. As a result of the most recent discussions that took place at the October 12, 2007, Policy Board meeting, staff would like to discuss and get feedback from the Working Group on what will be presented at the SANDAG Board retreat in late January. Materials for review by the Working Group are attached.</p>	
+6. STATUS AND NEXT STEPS FOR POTENTIAL REGIONAL BEACH SAND REPLENISHMENT PROJECT	DISCUSSION/POTENTIAL RECOMMENDATION
<p>Staff will provide the Working group with an update on the status of ongoing efforts toward a regional beach replenishment project. This will include a discussion of potential allocations for the region to use in order to match state funds that may become available. These options and scenarios are provided for planning purposes in attachments one and two to Item 6.</p>	

<b>ITEM #</b>	<b>RECOMMENDATION</b>
<p>7. SAND COMPATIBILITY AND OPPORTUNISTIC USE PROGRAM (SCOUP)</p> <p>Chris Webb from Moffatt and Nichol will provide an update on the status of the second environmental document being prepared for the cities of Coronado, Encinitas, Imperial Beach, and Solana Beach as part of the SCOUP.</p>	<p>INFORMATION</p>
<p>8. COASTAL REGIONAL SEDIMENT MANAGEMENT PLAN</p> <p>SANDAG was awarded a grant from Boating and Waterways for the development of a Coastal Regional Sediment Management Plan for the San Diego region. This work began in November. Chris Webb, from Moffatt and Nichol, the consultant chosen to work on the project, will provide the Working Group with the status of plan preparation. Additionally, a public meeting will be held on January 23, 2008, to solicit from stakeholders information that can be used for preparation of the plan.</p>	<p>INFORMATION</p>
<p>9. LEGISLATIVE UPDATE</p> <p>Steve Aceti from CalCoast will discuss the status of state and federal legislation.</p>	<p>INFORMATION</p>
<p>+10. 2008 SPWG MEETING SCHEDULE</p> <p>A schedule of SPWG meetings for 2008 is attached for information. The Working Group generally meets the first Thursday of every other month at 11:30 a.m.</p>	<p>INFORMATION</p>
<p>11. ADJOURNMENT AND NEXT MEETING</p> <p>The next Working Group meeting is scheduled for Thursday, February 7, 2008, from 11:30 a.m. to 1 p.m.</p>	<p>INFORMATION</p>

+ next to an item indicates an attachment

**San Diego Association of Governments**  
**SHORELINE PRESERVATION WORKING GROUP**

December 6, 2007

AGENDA ITEM NO.: **3**

**Action Requested: APPROVE**

SUMMARY OF THE JULY 12, 2007, MEETING

File Number 3002800

**Members in Attendance:**

Ann Kulchin, City of Carlsbad, Chair  
James Bond, City of Encinitas, Co-Chair  
Kevin Faulconer, City of San Diego  
Jim Janney, City of Imperial Beach  
Joe Kellejian, City of Solana Beach  
Phil Monroe, City of Coronado  
Ester Sanchez, City of Oceanside  
Pam Slater-Price, County of San Diego

**Advisory Members in Attendance:**

Steve Aceti, California Coastal Coalition  
Mike Bixler, San Diego Unified Port District  
August Felando, California Lobster and Trap Fishermen's Association  
Bob Hoffman, National Marine Fisheries Service  
Lee McEachern, California Coastal Commission  
Julie Thomas, Scripps Institution of Oceanography

**Staff Subgroups:**

Ray Duncan, City of Oceanside  
Don Hadley, City of Oceanside  
Steven Jantz, City of Carlsbad  
Ed Kleeman, City of Coronado  
Y. Sachiko Kohatsu, County of San Diego  
Leslsea Myerhoff, City of Solana Beach  
Danny Schrotberger, City of San Diego  
Greg Wade, City of Imperial Beach  
Kathy Weldon, City of Encinitas

**Others:**

Greg Herron, Coastal Frontiers  
Barry Snyder, AMEC  
Nick Bultbe, AMEC  
Anne-Lise Lindquist, Moffatt & Nichol  
Scott Harrison, Surfrider Foundation  
Claudio Fassardi, Noble Consultants  
Dick Erhardt, Encinitas Seacoast Preservation  
Angela Lockhart, City of Carlsbad

Brian Bidolli, SANDAG  
Kevin Wood, SANDAG  
Rob Rundle, SANDAG  
Shelby Tucker, SANDAG

**1. Introductions and Public Comments**

Ann Kulchin, City of Carlsbad, called the meeting to order at 11:40 a.m. and introductions were made.

**2. Agenda Item #2, Summary of the May 3, 2007, Meeting**

Upon motion from Phil Monroe, City of Coronado, and seconded by Joe Kellejian, City of Solana Beach, the Working Group recommended approval of the May 3, 2007, meeting minutes.

**3. Agenda Item #8, Legislative Update**

Due to time constraints, Steve Aceti from the California Coastal Coalition gave his legislative update early.

The first issue was the possible purchase of a dredge by the state. A contract has been signed with Moffat & Nichol to perform a feasibility study. It is still uncertain where funds would come from to purchase a dredge, but Proposition 84 is a possible source.

Joe Kellejian, City of Solana Beach, mentioned that he is an alternate member of the League of California Cities coastal issues group and had asked that a question be put on their next survey asking which cities would use a suction dredge if the state was to purchase one. He has not yet seen if the question actually made it onto the survey.

Mr. Aceti informed the Working Group that State Senator Ducheny is working on a policy bill that would transfer authority for the Public Beach Restoration Program from the Department of Boating and Waterways (DBW) to the Coastal Conservancy (Conservancy). It was originally to be executed through a budget trailer bill, but DBW funded it for the next year through a finance letter, so the move did not get made. Senator Ducheny's policy bill will allow the transfer to go through the normal process.

While both the Conservancy and DBW are supportive of the move, one sticking point may be whether the Harbor and Watercraft Revolving Fund would go with it. DBW would be reluctant to lose that money.

He also informed the Working Group that the Coastal Coalition's Annual Conference with the Wetlands Recovery Project and the California Shore and Beach Preservation Association (CSBPA) will be October 24-26, 2007 in Long Beach. More information and a call for presentations will be sent out shortly.

#### **4. Agenda Item #3, SANDAG Working Group Guidelines**

John Kirk, Deputy General Council at SANDAG, addressed the Working Group on its advisory role. He offered to answer any questions and provided a precise written opinion on any specific questions that might arise. More generally, he reminded the members of the Working Group that they do not set policy, which is the domain of the SANDAG Board of Directors (Board). The Board, however, does not make decisions in a vacuum, but relies upon the expertise that comes up the chain from committees and working groups. The Working Group has a lot of technical expertise and background knowledge on regional shoreline issues. One can look at the Working Group's charter for the most complete definition of the Working Group's role.

In addressing limitations on public comments, he said that Working Group members may speak as members of a working group, but not state anything as official as SANDAG policy. While certain policies may be within a member's jurisdiction as a councilperson, the Board is responsible for setting the official policy of SANDAG. More detailed analyses of the role of the Working Group were included with the agenda. At this point, Mr. Kirk opened it up for questions.

James Bond, City of Encinitas, thought that though the members of the Working Group knew their role, he wanted to make sure that adequate attention was paid to their work and that their recommendations were listened to and were not simply an exercise. Mr. Kirk noted that the Working Group needs to follow its charter and that the charter would have to be changed to achieve other goals. The Board would be open to changes in the charter if they appeared necessary upon review.

Mr. Kellejian had a question on the ability of committee members to make statements to reporters, talk to legislators, or send letters, which seems to be prohibited in the guidelines from Julie Wiley, General Consul (Attachment 1). With the amount of interest in the activities of the Working Group, members would be unable to adequately inform the public about the projects of the Working Group if communications were prohibited. Mr. Kirk clarified that the prohibition is only on statements of policy as a representative of SANDAG. Members are allowed to express their opinions as individuals or elected officials and factual information on proceedings without limitation. Members may not indicate that the comments are official positions of SANDAG or the Working Group unless official positions have been taken.

## **5. Agenda Item #4, Update on Actions Taken by SANDAG Policy Committees and Board of Directors on Items from the Shoreline Preservation Working Group**

Shelby Tucker, SANDAG, provided an update on discussions that took place at the June 8, Board of the Directors meeting. A copy of the agenda was included in the Working Group's agenda packet and copies of the meeting's minutes were made available. She thanked everyone who worked on the Board meeting and expressed her appreciation of everyone's involvement and support. Shoreline issues will again be discussed at the October Policy Board meeting. The issues to be discussed will be looked at as part of the Working Group's September meeting. Also, on June 22, the Board adopted a resolution of support for the San Diego Region to identify funding to implement a regional beach sand project, which is necessary to accompany the feasibility study to compete for state funds from DBW.

Phil Monroe, City of Coronado, asked how the meeting went beyond what is discussed in the meeting minutes and what the general feelings of the Board were. Those who attended felt they successfully demonstrated that shoreline preservation was a regional issue and that there was support on the Board for treating it as such. There were some people who did not understand that the meeting was only supposed to be informational and didn't include specific recommendations. Also, some people were critical of the shoreline program, noting that there were other important priorities for the region, like hospitals. There also was a question on the federal government role, and whether they should be responsible for the beaches. Supervisor Slater-Price, County of San Diego, pointed it out that not everyone was critical of the shoreline program, and that the person who cited hospitals as priorities has no beaches in his jurisdiction.

Financing was identified as a major issue that the Working Group would have to deal with. Noting the importance of the Working Group, James Bond wondered if they could place pressure on the Board using people who are members, so that the Working Group always had some representation and was not dealt with in overly broad strokes. The question of appointing official liaisons to the Board was raised, although Mr. Janney suggested that the Working Group should work through the Regional Planning Committee (RPC), since they are the policy committee with official oversight over the Working Group. Although shoreline issues are very important to the region, the Board-Committee-Working Group structure is dictated by state law.

Mike Bixler, San Diego Unified Port District, suggested that the Working Group should make sure they always had a member in attendance at the RPC and the Board to keep a thread going all the way to the top. Mr. Monroe wondered if Working Group issues could be brought to the County Board of Supervisors. Ms. Slater-Price said she could explore the option.

Ms. Kulchin asked for a motion to designate a liaison to the RPC. Ester Sanchez volunteered to attend the RPC meetings as a member of the public. Steve Aceti volunteered as an alternate. No vote was taken, but this action fulfilled Agenda Item #7.

## **6. Agenda Item #5, Regional Shoreline Monitoring Program Annual Report**

Greg Herron from Coastal Frontiers provided the Working Group with a presentation on the results from the Regional Shoreline Monitoring Program for 2006. He used the periods 1993-2000 (before the Regional Beach Sand Project [RBSP]) and 2001-present to analyze major changes. He noted that on a year-to-year average, more sand was going into the Oceanside cell in the pre-RBSP than in the post-RBSP period, since there have been no programs placing sizable amounts of sand since the RBSP. There was some question over how the numbers were presented, but it was clear that less sand has been put in recently and it is important that cities continue with opportunistic programs.

Much of the sand that was put on the beaches as part of the RBSP has been retained. Beach widths increased after the RBSP and begin to drop off in 2005 but bounced back in 2006, thanks to redistribution of the sand by favorable wave conditions. On average, lagoon openings were very similar to before the RBSP.

Ms. Slater-Price asked if there was information on how much sand was lost off of area beaches into La Jolla Canyon. Julie Thomas, Scripps Institution of Oceanography, said that there was a lack of solid data, but the last six years of monitoring seemed to show the sand staying close to shore in sand bars. There has been a relatively mild wave climate in the last six years, and that may change in the next several years. In any case, sand is constantly moving.

Mr. Monroe mentioned that the Imperial Beach Opportunistic project was a great victory for the Working Group. The material dredged from the San Diego Bay would have otherwise been dumped out to sea, but was instead serving beach goers.

Mr. Bixler asked about the effect of kelp beds on sand retention and if there is empirical evidence that beaches protected by kelp forests retain their sand longer. He wondered if maintaining kelp forests would be an alternative to continued sand replenishment. Ms. Thomas noted that, in general, adding sand to one place may entail a reduction from another, through reductions in long shore transport. She will get back to the Working Group with data, although preliminary studies indicate kelp forests have little impact on wave action.

## **7. Agenda Item #6 Regional Beach Sand Replenishment Planning Cost Allocation Methodology**

Shelby Tucker, SANDAG, stated that the Working Group needed to recommend a cost allocation methodology for the preliminary planning activities associated with a regional beach sand replenishment project. The staff subgroup had selected a distribution of costs based on miles of coastlines, while SANDAG staff recommended an equal distribution of costs among the cities. She also informed the Working Group that they would be responsible by setting deadlines for resolutions of support from City Councils, but it was determined that October 1, 2007, would be the target date.



There was considerable discussion on the proposed cost allocation methodologies, although the importance of making a decision and moving forward was recognized. It was noted that an equal allocation would entail substantially higher costs for some of the smaller jurisdictions. Kevin Faulconer, City of San Diego, said that despite the substantial differences in cost to his city, he was willing to go either way. Ms. Kulchin thought there was precedent for funding a program based on miles of coastline.

Rob Rundle, SANDAG, noted that the beach monitoring program funding was based on miles of coastline in each jurisdiction because each jurisdiction benefited differently. The benefits from planning are harder to quantify, so it was felt an equal distribution was reasonable. Ms. Tucker clarified that the funding was for planning only, which is a one-time cost. Funding for the balance of the projects costs will likely be divided differently.

Mr. Kellejian made a motion to fund the planning costs based on miles of coastline in each jurisdiction. Ms. Sanchez seconded this motion. (The motioned passed unanimously.)

Ms. Tucker stated that SANDAG will provide a letter to each jurisdiction outlining the steps it must take to supply funding for the planning activities, which include investigation of offshore sand sources and preliminary design.

#### **8. Agenda Item #7, Designate Shoreline Preservation Working Group Member to Attend Regional Planning Committee Meetings**

Ms. Kulchin noted that this had already been accomplished under Item #4.

#### **9. Public Comment/Communications**

Public comments and communications were invited but none were made. Ms. Tucker introduced the new SANDAG intern, Kevin Wood, who will be helping out on shoreline projects.

#### **10. Adjournment and Next Meeting**

The next meeting is scheduled for November 1, 2007, 11:30 a.m. to 1 p.m. The meeting was adjourned by Ms. Kulchin at 12:58 p.m.

## ECONOMIC CONSIDERATIONS

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A benefit-cost analysis was performed for each alternative to determine the optimum solution to the problem from an economic standpoint. The analysis is provided below.

### 6.1 Benefits

Benefits accrued from the project alternatives consist of increased recreational usage, access, public safety, and habitat for nesting and foraging shorebirds, and reducing physical damage to property and infrastructure, emergency costs, and business revenue losses.

The original scope of work for this project only called for estimates of recreational benefits. However, we have included an estimate for storm damage prevention benefits to public land. The State allows one to count storm damage prevention benefits for public buildings and infrastructure such as roads and utility lines, however, in contrast to the USACE, the State does not allow one to include storm damage benefits to private property or private buildings, though these benefits would clearly be significant to the owners of the property.

Cost estimates for each alternative were generated to calculate the benefit-cost ratio for economic analysis. Initial costs are specified for each alternative. The cost of each alternative is discussed below.

A study commissioned by the City of Encinitas in 2006 found that the RBSP actually had a positive impact on biological resources by providing additional beach habitat for nesting and foraging shorebirds. However, ecological restoration and creation of habitat were not quantified for the purposes of this study. Estimating the benefits from ecological restoration is problematic since: (a) biologists are still establishing and quantifying these benefits, and (b) the methodology for assigning a dollar value to ecological restoration is still in its infancy and many government agencies, such as the USACE, refuse to assign dollar benefits. However, these potential benefits are real and could be substantial. Among the species that occur in the area that could potentially benefit directly from increased beach width are the following:

- Western Snowy Plover: This federally listed threatened species (and a State species of "special concern") nests on sandy beaches.
- California Least Tern: This State and federally listed endangered species nests on the beach and in dunes at various sites in San Diego County.
- California Grunion: According to the California Department of Fish and Game, this species of fish is limited. The Grunion spawn on beaches and benefit from beach restoration.

A number of other endangered species benefit from this mitigation including: the Salt marsh bird's beak (endangered plant species), the California brown pelican (endangered bird species), the light footed clapper rail (endangered bird), Belding's savannah sparrow (endangered bird), and the

Pacific pocket mouse (endangered). Furthermore, a number of other plant and animal species which inhabit or use sandy beaches and adjacent habitat could also benefit. In addition, protecting sandy beaches can potentially preserve wetlands and salt marshes adjacent to the beaches by mitigating the effects of storms.

#### ***6.1.1 Proposed 2001 RBSP Rebuild***

The proposed 2001 RBSP rebuild alternative using 2.1 MCY of material is the same project constructed in 2001. Table 6.1 shows the cost for this project. The project costs approximately \$21,800,000 from concept through construction.

**Table 6.1  
Preliminary Cost Estimate  
Proposed SANDAG RBSP Rebuild**

ITEM NO.	ITEM DESCRIPTION	Assumed RSBP#1		UNIT	UNIT COST	SUBTOTAL
		Borrow Site (RSBP #1)	Final QUANTITY			
<b>Planning/Soft Costs - Assumed for Now to Be Similar to Previous Project With Escalation</b>						
1	Additional Investigation of Offshore Sand Sources		1	LS	\$300,000	\$ 300,000
2	Preliminary Design (likely on the high end)		1	LS	\$200,000	\$ 200,000
3	Environmental Review (CEQA/NEPA)		1	LS	\$500,000	\$ 500,000
4	Resource Agency Permits		1	LS	\$350,000	\$ 350,000
5	Final Plans, Specs, & Engineering		1	LS	\$1,000,000	\$ 1,000,000
6	Pre and Post Project Monitoring (Biological, reduced for <u>same project</u> )		1	LS	\$250,000	\$ 250,000
7	Pre and Post Project Monitoring (Shoreline)		1	LS	\$600,000	\$ 600,000
8	Cost-Benefit Analysis (new task)		1	LS	\$40,000	\$ -
9	Environmental Permit Contingency for Possible Unknowns (15%)		1	LS	15% of Prelim.	\$ 435,000
<b>Subtotal Prelim/Soft Construction Items (likely on the high end and may be able to be reduced)</b>						<b>\$ 3,635,000</b>
AMOUNT TO BE FUNDED LOCALLY						\$ 500,000
<b>GRAND TOTAL SOFT COSTS</b>						<b>\$ 3,135,000</b>
<b>Construction Costs</b>						
1	Mobilization & Demobilization		1	LS	\$2,500,000	\$ 2,500,000
2	Oceanside Beach	SO7	420,000	CY	\$7.01	\$ 2,943,365
3	N. Carlsbad	SO5	225,000	CY	\$9.01	\$ 2,026,713
4	S. Carlsbad	SO7	160,000	CY	\$5.54	\$ 886,943
5	Batiquitos	SO7	118,000	CY	\$5.04	\$ 595,107
6	Leucadia Beach	SO7	130,000	CY	\$5.33	\$ 692,777
7	Moonlight Beach	SO7	103,000	CY	\$5.58	\$ 574,649
8	Cardiff Beach	SO6	104,000	CY	\$4.72	\$ 491,206
9	Fletcher Cove	SO5	140,000	CY	\$5.96	\$ 833,968
10	Del Mar	SO5	180,000	CY	\$5.29	\$ 952,218
11	Torrey Pines	SO5	240,000	CY	\$5.79	\$ 1,389,651
12	Mission Beach	MB1	150,000	CY	\$5.26	\$ 788,642
13	Imperial Beach	MB1	120,000	CY	\$9.36	\$ 1,123,026
14	Construction Contingency		1	LS	10% of constr.	\$ 1,579,826
15	Construction Management		1	LS	7% of constr.	\$ 1,105,878
16	Construction Survey or Inspection		1	LS	3% of constr.	\$ 473,948
<b>Total Construction Costs</b>						<b>\$ 18,957,917</b>
<b>GRAND TOTAL ALL ITEMS</b>			2,090,000			<b>\$ 22,092,917</b>
<b>ASSUMPTIONS:</b>						
1 This cost estimate is for a duplicate project to the 2001 RBSP using the same borrow site and receiver site arrangements. However, it is unknown if all of the borrow sites (e.g., SO-7) can provide the volume of sand needed, and therefore, further offshore explorations are required. These exploration costs are included as Item 1.						
2 Pre- and post-project biological monitoring costs are assumed to decrease significantly from the 2001 RBSP. The level of monitoring will be less if the project is identical to the 2001 RBSP, but requirements need to be further defined. Monitoring includes that for beach profiles and limited marine biology before construction, turbidity monitoring during construction, and beach profiles and limited biology for approximately 5 years after construction						
3 Dredging and Pumping includes land equipment for building the beach profile.						
4 Costs for permits and environmental review assume an Environmental Impact Report (CEQA) and Environmental Assessment (NEPA) are required, as were required for the 2001 RBSP project with similar costs escalated for 2008 dollars.						
5 The cost of final engineering is a rough estimate from the 2001 RBSP and needs verification, but the level of effort should be similar or less for an identical project.						

### 6.1.2 Modified Two MCY Project

Alternative 2 is the RBSP with fewer receiver sites and the same 2 MCY quantity, but distributed such that more sand is on fewer sites. Table 6.2 shows the cost for this project. The project costs approximately \$21,200,000 million from concept through construction. No significant change in costs occurs from slightly modifying the receiver sites.

**Table 6.2**  
**Preliminary Cost Estimate**  
**Alternative 2 to SANDAG – Fewer Sites and More Sand at Each Site**

ITEM NO.	ITEM DESCRIPTION	Assumed	RSBP#1		UNIT COST	SUBTOTAL
		Borrow Site	Final	QUANTITY		
		(RSBP #1)				
<b>Planning/Soft Costs - Assumed for Now to Be Similar to Previous Project With Escalation</b>						
1	Additional Investigation of Offshore Sand Sources		1	LS	\$300,000	\$ 300,000
2	Preliminary Design (likely on the high end)		1	LS	\$200,000	\$ 200,000
3	Environmental Review (CEQA/NEPA)		1	LS	\$500,000	\$ 500,000
4	Resource Agency Permits		1	LS	\$350,000	\$ 350,000
5	Final Plans, Specs, & Engineering		1	LS	\$1,000,000	\$ 1,000,000
6	Pre and Post Project Monitoring (Biological, reduced for <u>same project</u> )		1	LS	\$250,000	\$ 250,000
7	Pre and Post Project Monitoring (Shoreline)		1	LS	\$600,000	\$ 600,000
8	Cost-Benefit Analysis (new task)		1	LS	\$40,000	\$ -
9	Environmental Permit Contingency for Possible Unknowns (15%)		1	LS	15% of Prelim.	\$ 435,000
	Subtotal Prelim/Soft Construction Items (likely on the high end and may be able to be reduced)					\$ 3,635,000
	AMOUNT TO BE FUNDED LOCALLY					\$ 500,000
	<b>GRAND TOTAL SOFT COSTS</b>					<b>\$ 3,135,000</b>
<b>Construction Costs</b>						
1	Mobilization & Demobilization		1	LS.	\$2,500,000	\$ 2,500,000
2	Oceanside Beach	SO7	570,000	CY	\$7.01	\$ 3,994,567
3	N. Carlsbad	SO5	0	CY	\$9.01	\$ -
4	S. Carlsbad	SO7	360,000	CY	\$5.54	\$ 1,995,621
5	Batiquitos	SO7	0	CY	\$5.04	\$ -
6	Leucadia Beach	SO7	0	CY	\$5.33	\$ -
7	Moonlight Beach	SO7	0	CY	\$5.58	\$ -
8	Cardiff Beach	SO6	104,000	CY	\$4.72	\$ 491,206
9	Fletcher Cove	SO5	140,000	CY	\$5.96	\$ 833,968
10	Del Mar	SO5	180,000	CY	\$5.29	\$ 952,218
11	Torrey Pines	SO5	360,000	CY	\$5.79	\$ 2,084,476
12	Mission Beach	MB1	150,000	CY	\$5.26	\$ 788,642
13	Imperial Beach	MB1	180,000	CY	\$9.36	\$ 1,684,539
14	Construction Contingency		1	LS.	10% of constr.	\$ 1,532,524
15	Construction Management		1	LS.	7% of constr.	\$ 1,072,767
16	Construction Survey or Inspection		1	LS.	3% of constr.	\$ 459,757
	<b>Total Construction Costs</b>					<b>\$ 18,390,284</b>
	<b>GRAND TOTAL ALL ITEMS</b>		2,044,000			<b>\$ 21,525,284</b>
<b>ASSUMPTIONS:</b>						
1 This cost estimate is for a duplicate project to the 2001 RBSP using the same borrow site and receiver site arrangements. However, it is unknown if all of the borrow sites (e.g., SO-7) can provide the volume of sand needed, and therefore, further offshore explorations are required. These exploration costs are included as Item 1.						
2 Pre- and post-project biological monitoring costs are assumed to decrease significantly from the 2001 RBSP. The level of monitoring will be less if the project is identical to the 2001 RBSP, but requirements need to be further defined. Monitoring includes that for beach profiles and limited marine biology before construction, turbidity monitoring during construction, and beach profiles and limited biology for approximately 5 years after construction						
3 Dredging and Pumping includes land equipment for building the beach profile.						
4 Costs for permits and environmental review assume an Environmental Impact Report (CEQA) and Environmental Assessment (NEPA) are required, as were required for the 2001 RBSP project with similar costs escalated for 2008 dollars.						
5 The cost of final engineering is a rough estimate from the 2001 RBSP and needs verification, but the level of effort should be similar or less for an identical project.						

### 6.1.3 Three MCY Project

The increased sand quantity – 3 MCY alternative would require a larger initial beach fill, placing larger quantities of sand at each of the RBSP receiver sites. The resulting total project cost is shown in Table 6.3. The project costs approximately \$28,400,000 million from concept through construction.

**Table 6.3**  
**Preliminary Cost Estimate**  
**Alternative to SANDAG – Increased Quantity – 3 MCY**

ITEM NO.	ITEM DESCRIPTION	Assumed		UNIT	UNIT COST	SUBTOTAL
		Borrow Site	RSBP#1			
		(RSBP #1)	QUANTITY			
<b>Planning/Soft Costs - Assumed for Now to Be Similar to Previous Project With Escalation</b>						
1	Additonal Investigation of Offshore Sand Sources		1	LS	\$300,000	\$ 300,000
2	Preliminary Design (likely on the high end)		1	LS	\$200,000	\$ 200,000
3	Environmental Review (CEQA/NEPA)		1	LS	\$500,000	\$ 500,000
4	Resource Agency Permits		1	LS	\$350,000	\$ 350,000
5	Final Plans, Specs, & Engineering		1	LS	\$1,000,000	\$ 1,000,000
6	Pre and Post Project Monitoring (Biological, reduced for <u>same project</u> )		1	LS	\$250,000	\$ 250,000
7	Pre and Post Project Monitoring (Shoreline)		1	LS	\$600,000	\$ 600,000
8	Cost-Benefit Analysis (new task)		1	LS	\$40,000	\$ -
9	Environmental Permit Contingency for Possible Unknowns (15%)		1	LS	15% of Prelim.	\$ 435,000
	Total Prelim/Soft Construction Items (likely on the high end and may be able to be reduced)					\$ 3,635,000
	AMOUNT TO BE FUNDED LOCALLY					\$ 500,000
	<b>GRAND TOTAL SOFT COSTS</b>					<b>\$ 3,135,000</b>
<b>Construction Costs</b>						
1	Mobilization & Demobilization		1	LS.	\$2,500,000	\$ 2,500,000
2	Oceanside Beach	SO7	570,000	CY	\$7.01	\$ 3,994,567
3	N. Carlsbad	SO5	240,000	CY	\$9.01	\$ 2,161,827
4	S. Carlsbad	SO7	360,000	CY	\$5.54	\$ 1,995,621
5	Batiquitos	SO7	177,000	CY	\$5.04	\$ 892,660
6	Leucadia Beach	SO7	195,000	CY	\$5.33	\$ 1,039,166
7	Moonlight Beach	SO7	132,000	CY	\$5.58	\$ 736,443
8	Cardiff Beach	SO6	156,000	CY	\$4.72	\$ 736,808
9	Fletcher Cove	SO5	210,000	CY	\$5.96	\$ 1,250,953
10	Del Mar	SO5	270,000	CY	\$5.29	\$ 1,428,326
11	Torrey Pines	SO5	360,000	CY	\$5.79	\$ 2,084,476
12	Mission Beach	MB1	150,000	CY	\$5.26	\$ 788,642
13	Imperial Beach	MB1	180,000	CY	\$9.36	\$ 1,684,539
14	Construction Contingency		1	LS.	10% of constr.	\$ 2,129,403
15	Construction Management		1	LS.	7% of constr.	\$ 1,490,582
16	Construction Survey or Inspection		1	LS.	3% of constr.	\$ 638,821
	<b>Total Construction Costs</b>					<b>\$ 25,552,835</b>
	<b>GRAND TOTAL ALL ITEMS</b>		3,000,000			<b>\$ 28,687,835</b>
<b>ASSUMPTIONS:</b>						
1 This cost estimate is for a duplicate project to the 2001 RBSP using the same borrow site and receiver site arrangements. However, it is unknown if all of the borrow sites (e.g., SO-7) can provide the volume of sand needed, and therefore, further offshore explorations are required. These exploration costs are included as Item 1.						
2 Pre- and post-project biological monitoring costs are assumed to decrease significantly from the 2001 RBSP. The level of monitoring will be less if the project is identical to the 2001 RBSP, but requirements need to be further defined. Monitoring includes that for beach profiles and limited marine biology before construction, turbidity monitoring during construction, and beach profiles and limited biology for approximately 5 years after construction						
3 Dredging and Pumping includes land equipment for building the beach profile.						
4 Costs for permits and environmental review assume an Environmental Impact Report (CEQA) and Environmental Assessment (NEPA) are required, as were required for the 2001 RBSP project with similar costs escalated for 2008 dollars.						
5 The cost of final engineering is a rough estimate from the 2001 RBSP and needs verification, but the level of effort should be similar or less for an identical project.						

**6.1.4 Optimized Project**

The optimized is the RBSP with modified receiver sites and the same 2.1 MCY quantity. The only change in sand distribution is that the sand from the Torrey Pines site will be placed on Mission Beach, increasing the sand quantity at Mission Beach. All other quantities will stay the same but the receiver sites at Oceanside and Imperial Beach would be moved to the north. Table 6.4 shows the cost for this project. The project costs approximately \$21,600,000 million from concept through construction, slightly less than the proposed alternative.

**Table 6.4**  
**Preliminary Cost Estimate**  
**Optimized SANDAG Regional Beach Sand Project Benefit/Cost Analysis**

ITEM NO.	ITEM DESCRIPTION	Assumed RSBP#1		UNIT	UNIT COST	SUBTOTAL
		Borrow Site (RSBP #1)	Final QUANTITY			
<b>Planning/Soft Costs - Assumed for Now to Be Similar to Previous Project With Escalation</b>						
1	Additional Investigation of Offshore Sand Sources		1	LS	\$300,000	\$ 300,000
2	Preliminary Design (likely on the high end)		1	LS	\$200,000	\$ 200,000
3	Environmental Review (CEQA/NEPA)		1	LS	\$500,000	\$ 500,000
4	Resource Agency Permits		1	LS	\$350,000	\$ 350,000
5	Final Plans, Specs, & Engineering		1	LS	\$1,000,000	\$ 1,000,000
6	Pre and Post Project Monitoring (Biological, reduced for <u>same project</u> )		1	LS	\$250,000	\$ 250,000
7	Pre and Post Project Monitoring (Shoreline)		1	LS	\$600,000	\$ 600,000
8	Cost-Benefit Analysis (new task)		1	LS	\$40,000	\$ -
9	Environmental Permit Contingency for Possible Unknowns (15%)		1	LS	15% of Prelim.	\$ 435,000
	Total Prelim/Soft Construction Items (likely on the high end and may be able to be reduced)					\$ 3,635,000
	AMOUNT TO BE FUNDED LOCALLY					\$ 500,000
	<b>GRAND TOTAL SOFT COSTS</b>					<b>\$ 3,135,000</b>
<b>Construction Costs</b>						
1	Mobilization & Demobilization		1	LS.	\$2,500,000	\$ 2,500,000
2	Oceanside Beach	SO7	420,000	CY	\$7.01	\$ 2,943,365
3	N. Carlsbad	SO5	225,000	CY	\$9.01	\$ 2,026,713
4	S. Carlsbad	SO7	160,000	CY	\$5.54	\$ 886,943
5	Batiquitos	SO7	118,000	CY	\$5.04	\$ 595,107
6	Leucadia Beach	SO7	130,000	CY	\$5.33	\$ 692,777
7	Moonlight Beach	SO7	103,000	CY	\$5.58	\$ 574,649
8	Cardiff Beach	SO6	104,000	CY	\$4.72	\$ 491,206
9	Fletcher Cove	SO5	140,000	CY	\$5.96	\$ 833,968
10	Del Mar	SO5	180,000	CY	\$5.29	\$ 952,218
11	Torrey Pines		0	CY	\$0.00	\$ -
12	Mission Beach	MB1	390,000	CY	\$5.26	\$ 2,050,469
13	Imperial Beach	MB1	120,000	CY	\$9.36	\$ 1,123,026
14	Construction Contingency		1	LS.	10% of constr.	\$ 1,567,044
15	Construction Management		1	LS.	7% of constr.	\$ 1,096,931
16	Construction Survey or Inspection		1	LS.	3% of constr.	\$ 470,113
	<b>Total Construction Costs</b>					<b>\$ 18,804,528</b>
	<b>GRAND TOTAL ALL ITEMS</b>		2,090,000			<b>\$ 21,939,528</b>
<b>ASSUMPTIONS:</b>						
1 This cost estimate is for a duplicate project to the 2001 RBSP using the same borrow site and receiver site arrangements. However, it is unknown if all of the borrow sites (e.g., SO-7) can provide the volume of sand needed, and therefore, further offshore explorations are required. These exploration costs are included as Item 1.						
2 Pre- and post-project biological monitoring costs are assumed to decrease significantly from the 2001 RBSP. The level of monitoring will be less if the project is identical to the 2001 RBSP, but requirements need to be further defined. Monitoring includes that for beach profiles and limited marine biology before construction, turbidity monitoring during construction, and beach profiles and limited biology for approximately 5 years after construction						
3 Dredging and Pumping includes land equipment for building the beach profile.						
4 Costs for permits and environmental review assume an Environmental Impact Report (CEQA) and Environmental Assessment (NEPA) are required, as were required for the 2001 RBSP project with similar costs escalated for 2008 dollars.						
5 The cost of final engineering is a rough estimate from the 2001 RBSP and needs verification, but the level of effort should be similar or less for an identical project.						



### 6.2.1 Methodology

Recreational benefits were estimated using a model that Dr. King has developed for the State and in conjunction with the State and the USACE as part of the Coastal Sediment Management Workgroup (CSMW).<sup>1</sup> Briefly, the model applies a benefits transfer model from the Southern California Beach Project<sup>2</sup> and uses local survey data<sup>3</sup> taken at beaches in San Diego County to calibrate changes in various amenities, in particular beach width, which is a critical part of this analysis. Beach attendance was measured from actual counts taken by Dr. King at each site as well as counts at adjacent reaches which might also have increased beach width after nourishment. Some data was also taken from previous studies by Dr. King for the cities of Carlsbad, Encinitas, and the State.<sup>4</sup> These studies also used actual counts of people on the beach in conjunction with survey data to estimate beach attendance.<sup>5</sup> Attendance estimates are for the specific reaches where sand will be placed and, where relevant, adjacent reaches where the sand spread in the 2001 project.

Changes in crowding at beaches (i.e., with the same number of people on the beach a wider beach will be less crowded – measured in terms of square foot of sand per visitor) also were taken into account. Survey data also indicates that people will go to a beach more often if it is wider. This increase in attendance has been accounted for, along with substitution effects. (If they go to one beach more often they also may go to another less often.) Finally, at certain sites where parking is difficult relative to the number of visitors, the growth rates in attendance from increased beach width have been reduced to account for this difficulty. This is particularly an issue at Mission Beach, where parking spots are hard to find, particularly on weekends in high season.

In addition to recreational benefits, beaches provide potential benefits to coastal property and infrastructure which may be considerable. Adding sand to the proposed project's 12 receiver sites would decrease the probability of public (and private) property being damaged in severe winter storms. In the event of a severe (or possibly even moderate) storm, beaches act as a buffer, limiting the encroachment of the ocean and ocean waves on inland property. These benefits accrue to both public and private property. However, the State only allows benefits to public property and infrastructure to be counted where the use of State tax dollars is being considered. For this project, Dr. King limited his estimate to loss of public land due to erosion. Incorporating other storm damage prevention benefits,

<sup>1</sup> The fullest discussion of the methodology employed is in my paper "The Economic of Regional Sediment Management in Ventura and Santa Barbara Counties," prepared for the California State Resources Agency, Final draft (refereed), fall 2006, prepared for the Coastal Sediment Management Work group (CSMW). The paper is at: [http://dbw.ca.gov/CSMW/PDF/Economics\\_of\\_RSM\\_0706.pdf](http://dbw.ca.gov/CSMW/PDF/Economics_of_RSM_0706.pdf). See also "The ARC GIS Coastal Sediment Analysis Tool: A GIS Support Tool for Regional Sediment Management Program: White Paper, Draft Technical Report for U.S. Army Corps of Engineers, Los Angeles District, April 2006, and also see "Coastal Sediment Analysis Tool (CSBAT) Beta Version--Sediment Management Decision Support Tool for Santa Barbara and Ventura Counties," Draft Technical Report for U.S. Army Corps of Engineers, Los Angeles District, June 2006. See also, "Overcrowding and the Demand for Public Beaches in California," Prepared for the Department of Boating and Waterways, April 2001.

<sup>2</sup> <http://marineeconomics.noaa.gov/SCBeach/>

<sup>3</sup> From various reports; see in particular my reports: "The Potential Loss in GNP and GSP from a failure to Maintain California's Beaches," prepared for the California State Resources Agency, 2002, <http://userwww.sfsu.edu/~pgking/pubpol.htm> and "The (Economic) Benefits of California's Beaches," prepared for the California State Resources Agency, 2002.

<sup>4</sup> Attendance was estimated using actual counts on the specific reaches in early summer 2007 as well as counts taken for the City of Carlsbad and Encinitas in the summer of 2005. For a discussion of the general methodology employed, see The Economic and Fiscal Impact of Carlsbad's Beaches: A Survey and Estimate of Attendance, December 12, 2005, and "Estimating Beach Attendance and Calibrating the Beach Counters for the City of Encinitas, February 15, 2006.

<sup>5</sup> In the City of Encinitas, laser counter data was also examined.

such as the increased benefit of preserving roads and municipal utilities would yield a somewhat higher result, though the value of lost public land is likely to be the most significant factor overall. Including the loss of private property also would yield substantially higher benefits.

Several of the sites included in this study contain reaches with seawalls. At two sites these seawalls protect public property – Carlsbad and Mission Beach. After examining these issues, we concluded that the seawall at Carlsbad was sufficient to protect against storms (though the area just north of the seawall contains some public property and access). At Mission Beach, the seawall is quite low and a wider beach at this site would provide some additional benefits, though less than at sites with no seawall.

Assistance on this project was provided by Everest Consultants, Moffat and Nichol, and Coastal Frontiers, Corp. Changes in beach width were assessed with the help of Everest Consultants, a coastal Engineering firm who served as a subcontractor on this project. The consulting firms Moffat & Nichol and Coastal Frontiers also assisted in providing and interpreting data. This study relied on Coastal Frontiers' data on what actually has happened to beach widths since the 2001 RBSP. While conditions obviously may be different in the next five years, this data has the advantage of taking into account actual impacts of the nourishment project, including how sand moved within littoral cells, which is hard to capture otherwise. Recent data from 2006 also indicates that some of the sand placed in 2001 appears to still be in the sediment budget of some cells. Since only five years of data were available, where it was clear that beach widths were still substantially above zero, the dissipation in beach width was forecast using least square techniques on the data.<sup>6</sup>

For this project, costs were estimated by Moffatt & Nichol. The actual cost of the project could be higher (or lower) and would affect the outcome of the benefit/cost analysis. Additionally, these estimates here do not consider the possibility of also adding coastal structures, such as groins and offshore reefs, which would maintain the sand width for a longer period of time. Although these structures add considerably to the costs of a project, they would also increase benefits substantially by lengthening the time period that the sand stays on the beach. These structures may be particularly useful at places like Fletcher Cove, where the sand left quite quickly after the RBSP. Indeed, the *Regional Beach Sand Retention Strategy* prepared by Moffatt & Nichol for SANDAG in 2001 concluded that the use of these structures at erosive beaches in San Diego County was warranted by a benefit/cost analysis.

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<sup>6</sup> The data include beach widths for 14 beaches spanning 2001 to 2006, a total of 84 observations. To minimize noise and to maximize information, I used a balanced panel regression to forecast beach width. Different regression specifications (linear vs. non-linear) were evaluated however the best outcome was found by regressing beach width on a constant.

### **6.2.2 Site Selection**

The selection of sites was determined by SANDAG, with input from Dr. King and Moffatt & Nichol. The recreational value of specific beaches was considered and resulted in the addition of the optimized alternative. This section will discuss very briefly each site, focusing solely on issues involved in the analysis of recreational value.

#### *Original SANDAG 2001 sites*

1. South Oceanside: A relatively narrow beach just north of the Carlsbad/Oceanside border. This reach is relatively underused and mostly attended by people who live (or rent condos) nearby. Access and parking is better just north near Oceanside pier, which has higher attendance.
2. North Carlsbad: This reach stretches from the northern part of the city, which is similar to S. Oceanside down close to Carlsbad Village. Recreational use increases significantly as one moves south, driven by parking, hotels, and condos near Carlsbad Village.
3. South Carlsbad: Two receiver sites exist here, adjacent to South Carlsbad State beach, which is popular with campers.
4. Batiquitos: Usually referred to as "Ponto" beach, in the southern part of Carlsbad. This spot is very popular, especially with local residents since parking is available.
5. Leucadia: A narrow reach just south of Grandview and north of Beacon's beach. Except for Grandview, access is limited to staircases from private dwellings. This section of beach is less populated than many others in the City of Encinitas.
6. Moonlight Beach: A very popular beach with good amenities and access.
7. Cardiff: A relatively narrow State beach, which is quite popular.
8. Fletcher Cove: A very narrow beach in Solana Beach; at high tide there is virtually no beach at Fletcher Cove.
9. Del Mar: A very popular reach stretching from downtown Del Mar north to 27<sup>th</sup> street. The beach narrows at the north end and is crowded on busy summer days, especially in the south.
10. Torrey Pines: A popular narrow beach.
11. Mission Beach: An extremely popular beach in San Diego. The RBSP reach is less crowded than the adjacent reaches just north and south.
12. Imperial Beach: The RBSP site is at the southern end of Imperial Beach, which has fewer amenities than the reach just north of the pier.

#### *Alternate Sites*

13. Oceanside Pier: Placing sand farther north of the original South Oceanside site, just south of the Oceanside Pier, would increase beach width in an area with more access and more visitors. Environmental constraints preclude placing sand north of the pier.

14. Imperial Beach Pier: Similar to above, placing sand near the pier would increase recreational benefits substantially. It would also potentially increase storm damage benefits to the pier and other public property adjacent to the beach.
15. Wider Placement on Mission Beach: Increasing the length of the reach on Mission Beach would increase recreational value for a larger number of people. The reaches both north and south of the RBSP site have significantly more people on them than the original reach.

Table 6.5 below presents estimates of yearly visits at the specific reaches involved including the adjacent areas that would also benefit from the increase in sand as it spreads. Please note that these are not estimates for the entire beach. Since there is some overlap in these estimates, totaling these estimates is not appropriate, however, the total population at these sites alone is close to 10 million people per year.

In addition, the City of Coronado helped fund this study and asked for data to be collected. This report includes estimates of economic impacts, benefits, and costs, though Coronado is not intended for nourishment since it already has a very wide beach.

**Table 6.5**  
**Yearly Population Estimates at Each Reach**  
**Including Sand Spread to Adjacent Sites<sup>7</sup>**

Site	Population Estimate
Oceanside Pier	500,000
S. Oceanside Beach Fill	250,000
N. Carlsbad Beach Fill	450,000
S. Carlsbad Beach Fill	250,000
S. Carlsbad (South)	200,000
Batiquitos Beach Fill	300,000
Leucadia Beach Fill	200,000
Moonlight Beach Fill	650,000
Cardiff Beach Fill	200,000
Fletcher Cove Beach Fill	55,000
Del Mar Beach Fill	450,000
Torrey Pines Beach Fill	200,000
Mission Beach Beach Fill	850,000
Extended Mission Beach	1,200,000
Imperial Pier	300,000
Imperial Beach Beach Fill	180,000
Coronado	300,000

<sup>7</sup> Please note that the total includes the wider Mission reach but not the smaller one in order to avoid double-counting.

### 6.2.3 Estimates of Recreational Benefits versus Costs

The Tables below present estimates of benefits and costs for the alternatives:

1. The Proposed 2001 RBSP Rebuild
2. A Reduction in Receiver Sites and Increases in Sand Volumes (Modified Two MCY Project)
3. A Three MCY Project
4. The Optimized Project

#### 6.2.3.1 2001 RBSP Rebuild

Table 6.6 presents the estimate of benefit/cost (B/C) ratios for the proposed 2001 RBSP rebuild with the original 2001 RBSP sites and quantities of sand. Beach widths were estimated using actual Monitoring Program data collected by Coastal Frontiers before and after the project and extrapolations from year 6 to year 11. The estimates of benefits are discounted at a 5 percent rate over the 11 year period. Overall, **the B/C ratio is 1.5**, which means that this project can be justified based on recreational benefits and an assessment of storm damage prevention benefits to publicly owned property, though adding in other benefits would increase these benefits. Compared to the optimized project, however, this alternative is not the economically preferred alternative.

**Table 6.6**  
**Benefits and Costs for the Proposed 2001 RBSP Rebuild**

Site	Cost	Increased Recreational Benefits	Storm Damage Benefits	Total Benefits	B/C
S. Oceanside Beach Fill	\$ 2,943,365	\$ 4,190,721	\$ 109,864	\$ 4,300,585	1.5
N. Carlsbad Beach Fill	\$ 2,026,713	\$ 2,991,515	\$ 204,947	\$ 3,196,463	1.6
S. Carlsbad Beach Fill	\$ 886,943	\$ 2,945,001	\$ 1,223,501	\$ 4,168,502	4.7
Batiquitos Beach Fill	\$ 595,107	\$ 1,601,273	\$ 513,303	\$ 2,114,576	3.6
Leucadia Beach Fill	\$ 692,777	\$ 2,458,617	\$ 50,277	\$ 2,508,894	3.6
Moonlight Beach Fill	\$ 574,649	\$ 3,497,959	\$ 487,734	\$ 3,985,693	6.9
Cardiff Beach Fill	\$ 491,206	\$ 2,862,776	\$ 742,487	\$ 3,605,263	7.3
Fletcher Cove Beach Fill	\$ 833,968	\$ 98,629	\$ 55,779	\$ 154,408	0.2
Del Mar Beach Fill	\$ 952,218	\$ 5,243,327	\$ 716,126	\$ 5,959,454	6.3
Torrey Pines Beach Fill	\$ 1,389,651	\$ 524,035	\$ 461,343	\$ 985,378	0.7
Mission Beach Beach Fill	\$ 788,642	\$ 2,656,237	\$ 170,048	\$ 2,826,285	3.6
Imperial Beach Beach Fill	\$ 1,123,026	\$ 298,981	\$ 39,198	\$ 338,178	0.3
Other Overhead	\$5,659,653				
Soft Costs	\$ 3,135,000				
<b>Total</b>	<b>\$ 22,092,917</b>	<b>\$ 29,369,072</b>	<b>\$ 4,774,606</b>	<b>\$ 34,143,678</b>	<b>1.5</b>

### 6.2.3.2 Modified Two MCY Project

Table 6.7 presents the estimate of B/C ratios for the 2001 RBSP with the following changes:

- The sand fill at Oceanside is increased from 421,000 CY to 570,000 CY
- South Carlsbad (North) is increased from 158,000 CY to 218,000 CY
- A new site is added in South Carlsbad South with 142,000 CY
- Batiquitos, Leucadia and Moonlight are eliminated
- Torrey Pines is increased from 245,000 CY to 360,000 CY
- Imperial Beach is increased from 120,000 CY to 180,000 CY

The B/C ratio for the modified 2 MCY alternative drops to 1.3, largely because some of the sites dropped (e.g., Moonlight and Batiquitos) had high B/C ratios. It makes little sense to drop two sites with high B/C ratios, therefore this is not a preferred alternative.

**Table 6.7**  
**Benefits and Costs for the Modified Two MCY Alternative**

Site	Cost	Increased Recreational Benefits	Storm Damage Benefits	Total Benefits	B/C
S. Oceanside Beach Fill 570,000	\$ 3,994,567	\$ 5,037,415	\$ 135,708	\$ 5,173,123	1.3
S. Carlsbad North Beach Fill 218,000	\$ 1,208,459	\$ 2,945,001	\$ 1,223,501	\$ 4,168,502	3.4
S. Carlsbad South Beach Fill 142,000	\$ 787,162	\$ 2,453,445	\$ 1,101,167	\$ 3,554,613	4.5
Cardiff Beach Fill	\$ 491,206	\$ 2,862,776	\$ 742,487	\$ 3,605,263	7.3
Fletcher Cove Beach Fill	\$ 833,968	\$ 98,629	\$ 55,779	\$ 154,408	0.2
Del Mar Beach Fill	\$ 952,218	\$ 5,243,327	\$ 716,126	\$ 5,959,454	6.3
Torrey Pines 360,000	\$ 2,084,476	\$ 1,150,719	\$ 989,628	\$ 2,140,347	1.0
Mission Beach Beach Fill 150,000	\$ 788,642	\$ 3,451,805	\$ 256,204	\$ 3,708,008	4.7
Imperial Beach Beach Fill 180,000	\$ 1,684,539	\$ 460,876	\$ 66,677	\$ 527,553	0.3
Soft Costs	\$ 3,135,000.00				
Other Overhead	\$ 5,565,047				
<b>Total</b>	<b>\$ 21,525,284</b>	<b>\$ 23,703,994</b>	<b>\$ 5,287,276</b>	<b>\$ 28,991,271</b>	<b>1.3</b>

### 6.2.3.3 Three MCY Project

This alternative increased the total sand placement to 3 million cubic yards from the original 2.1 million placed on the beaches during the 2001 RBSP, an increase of 43 percent. The B/C ratio is 1.1, which implies that the benefits are greater than the costs by about 20 percent, a lower B/C ratio than other projects.

**Table 6.8**  
**Benefits and Costs for the 3 MCY Project**

<b>Site</b>	<b>Cost</b>	<b>Increased Recreational Benefits</b>	<b>Storm Damage Benefits</b>	<b>Total Benefits</b>	<b>B/C</b>
S. Oceanside Beach Fill	\$ 3,994,567	\$ 4,760,901	\$ 123,900	\$ 4,884,801	1.2
N. Carlsbad Beach Fill	\$ 2,161,827	\$ 3,516,165	\$ 264,003	\$ 3,780,168	1.7
S. Carlsbad Beach Fill	\$ 1,995,621	\$ 4,194,920	\$ 1,357,375	\$ 5,552,295	2.8
Batiquitos Beach Fill	\$ 892,660	\$ 1,655,759	\$ 607,530	\$ 2,263,289	2.5
Leucadia Beach Fill	\$ 1,039,166	\$ 2,371,604	\$ 58,496	\$ 2,430,100	2.3
Moonlight Beach Fill	\$ 736,443	\$ 4,036,358	\$ 562,210	\$ 4,598,568	6.2
Cardiff Beach Fill	\$ 736,808	\$ 3,236,622	\$ 933,917	\$ 4,170,539	5.7
Fletcher Cove Beach Fill	\$ 1,250,953	\$ 114,992	\$ 74,279	\$ 189,271	0.2
Del Mar Beach Fill	\$ 1,428,326	\$ 5,243,327	\$ 716,126	\$ 5,959,454	4.2
Torrey Pines Beach Fill	\$ 2,084,476	\$ 610,970	\$ 611,540	\$ 1,222,510	0.6
Mission Beach Beach Fill	\$ 788,642	\$ 2,329,464	\$ 147,727	\$ 2,477,191	3.1
Imperial Beach Beach Fill	\$ 1,684,539	\$ 349,287	\$ 50,918	\$ 400,205	0.2
Other Overhead	\$ 6,758,806				
Soft Costs	\$ 3,135,000				
<b>Total</b>	<b>\$ 28,687,835</b>	<b>\$ 32,420,368</b>			<b>1.1</b>

#### **6.2.3.4 Optimized Project**

This alternative is very similar to the proposed 2001 RBSP rebuild, but attempts to increase benefits by increasing sand to sites with high B/C ratios and eliminating or moving sites with lower ratios. Environmental and political constraints were also considered. Some sand placements (e.g., placement of sand north of the pier at Oceanside) were eliminated due to environmental constraints. In addition, moving sand from beaches in one city to beaches in another was not considered a politically feasible option. All movements of sand were limited to other sites within the same city.

The following changes from the 2001 RBSP were made for this alternative:

- The beach fill in S. Oceanside was moved farther north just south of the pier.
- The fill in Torrey Pines was eliminated and the sand was added to Mission Beach, lengthening that reach.
- The beach fill at Imperial Beach was moved farther north, centered on the pier.

Optimizing yields considerably higher benefits with a B/C ratio of 2.0, the highest B/C ratio of any project alternative.

**Table 6.9**  
**Benefits and Costs for the Optimized Project**

Site	Cost	Increased Recreational Benefits	Storm Damage Benefits	Total Benefits	B/C
Oceanside Pier Beach Fill	\$ 2,943,365	\$ 3,852,896	\$ 3,047,937	\$ 6,900,834	2.3
N. Carlsbad Beach Fill	\$ 2,026,713	\$ 2,991,515	\$ 204,947	\$ 3,196,463	1.6
S. Carlsbad Beach Fill	\$ 886,943	\$ 2,945,001	\$ 1,223,501	\$ 4,168,502	4.7
Batiquitos Beach Fill	\$ 595,107	\$ 1,601,273	\$ 513,303	\$ 2,114,576	3.6
Leucadia Beach Fill	\$ 692,777	\$ 2,458,617	\$ 50,277	\$ 2,508,894	3.6
Moonlight Beach Fill	\$ 574,649	\$ 3,497,959	\$ 487,734	\$ 3,985,693	6.9
Cardiff Beach Fill	\$ 491,206	\$ 2,862,776	\$ 742,487	\$ 3,605,263	7.3
Fletcher Cove Beach Fill	\$ 833,968	\$ 98,629	\$ 55,779	\$ 154,408	0.2
Del Mar Beach Fill	\$ 952,218	\$ 5,243,327	\$ 716,126	\$ 5,959,454	6.3
Mission Beach Fill (South + Torrey)	\$ 2,050,469	\$ 8,587,359	\$ 1,224,130	\$ 9,811,489	4.8
Imperial Beach Beach Fill North	\$ 1,123,026	\$ 853,167	\$ 276,043	\$ 1,129,211	1.0
Other Overhead	\$5,634,088				
Soft Costs	\$ 3,135,000.00				
<b>Total</b>	<b>\$ 21,939,528</b>	<b>\$ 34,992,520</b>	<b>\$ 8,542,265</b>	<b>\$ 43,534,785</b>	<b>2.0</b>

## 6.2 Economic Analysis

### 6.3.1 Economic Impacts

In addition to measuring recreational benefits from increased beach width, policy makers want to know how much economic activity is generated by beach recreation. Dr. King has quantified this for the State and for a number of communities in several studies.<sup>8</sup> This section will provide estimates of direct total spending generated at the State and local (city) levels as well as taxes generated from this spending. Local spending is lower than State spending simply because visitors may not spend all of their dollars in one town. For example, a visitor to Carlsbad may drive in from San Francisco – some of their travel expenditures will occur in the City of Carlsbad and some will occur in the County of San Diego. Local taxes generated do not include increases in property taxes generated by wider beaches. Adequate data does not exist to make such an estimate, but it is clear that this impact is significant and thus these estimates are conservative.

<sup>8</sup> See, in particular: "The Potential Loss in GNP and GSP from a failure to maintain California's Beaches," prepared for the California State Resources Agency, 2002, <http://userwww.sfsu.edu/~pgking/pubpol.htm> and "The (Economic) Benefits of California's Beaches," prepared for the California State Resources Agency, 2002.



**Table 6.10**  
**State and Local Economic Impacts at Proposed Sites**

Site	Current State Spending	State Taxes Generated	Local Spending	Local Taxes Generated
Oceanside Pier	\$ 16,025,000	\$ 1,842,875	\$ 11,720,000	\$ 293,000
S. Oceanside Beach Fill	\$ 5,950,000	\$ 684,250	\$ 4,760,000	\$ 119,000
N. Carlsbad Beach Fill	\$ 15,210,000	\$ 1,749,150	\$ 10,908,000	\$ 272,700
S. Carlsbad Beach Fill	\$ 13,512,500	\$ 1,553,938	\$ 10,260,000	\$ 256,500
S. Carlsbad (South)	\$ 10,810,000	\$ 1,243,150	\$ 8,208,000	\$ 205,200
Batiquitos Beach Fill	\$ 7,965,000	\$ 915,975	\$ 5,712,000	\$ 142,800
Leucadia Beach Fill	\$ 6,060,000	\$ 696,900	\$ 4,568,000	\$ 114,200
Moonlight Beach Fill	\$ 19,045,000	\$ 2,190,175	\$ 13,806,000	\$ 345,150
Cardiff Beach Fill	\$ 6,960,000	\$ 800,400	\$ 4,688,000	\$ 117,200
Fletcher Cove Beach Fill	\$ 2,216,500	\$ 254,898	\$ 1,531,200	\$ 38,280
Del Mar Beach Fill	\$ 18,135,000	\$ 2,085,525	\$ 12,528,000	\$ 313,200
Torrey Pines Beach Fill	\$ 5,860,000	\$ 673,900	\$ 3,808,000	\$ 95,200
Mission Beach Beach Fill	\$ 34,255,000	\$ 3,939,325	\$ 23,664,000	\$ 591,600
Extended Mission Beach	\$ 48,360,000	\$ 5,561,400	\$ 33,408,000	\$ 835,200
Imperial Pier	\$ 7,965,000	\$ 915,975	\$ 5,712,000	\$ 142,800
Imperial Beach Beach Fill	\$ 4,779,000	\$ 549,585	\$ 3,427,200	\$ 85,680
Coronado	\$ 14,565,000	\$ 1,674,975	\$ 9,672,000	\$ 241,800
<b>Total</b>	<b>\$ 203,418,000</b>	<b>\$ 23,393,070</b>	<b>\$ 144,716,400</b>	<b>\$ 3,617,910</b>
Alternate 1 (and 4) Total	\$ 139,948,000	\$ 16,094,020	\$ 99,660,400	\$ 2,491,510
Alternate 2 Total	\$ 150,758,000	\$ 17,337,170	\$ 107,868,400	\$ 2,696,710
Alternate 3 Total	\$ 161,454,000	\$ 18,567,210	\$ 114,841,200	\$ 2,871,030

Overall economic activity for each specific alternative generates between \$140 million and \$161 million in economic activity per year within the State and between \$16 million and \$18.5 million in State taxes per year. The corresponding local economic activity is between \$100 million and \$115 million and \$2.5 million and \$2.8 million in taxes per year. An estimate for all beaches in San Diego would be significantly higher.

Local spending is just under \$70 million, with \$1.7 million in taxes generated per year. The corresponding figures for the sites in each alternative are also given in Table 6.10 above.

### **6.3.2. Increases in Economic Activity and Taxes**

One also can measure the **additional** economic activity generated by increasing beach width. However, data indicates that increased activity only occurs to the extent that additional people go to the beach. Consequently, unlike our economic benefit calculations, which quantify the increased benefit of a wider beach as well as increases in attendance, the increased economic activity is only derived from increased attendance.

Tables 6.11, 6.12, 6.13, and 6.14 below present the increased state and local economic impact from all alternatives over the life of the project.<sup>9</sup>

**Table 6.11**  
**Direct Economic Impacts for the 2001 RBSB Rebuild**

Site	Increased State Spending	Increased State Taxes	Increased Local Spending	Increased Local Taxes
S. Oceanside Beach Fill	\$ 6,497,476	\$ 747,210	\$ 5,197,981	\$ 162,437
N. Carlsbad Beach Fill	\$ 2,007,721	\$ 230,888	\$ 1,439,857	\$ 50,193
S. Carlsbad Beach Fill	\$ 12,069,114	\$ 1,387,948	\$ 9,164,041	\$ 301,728
Batiquitos Beach Fill	\$ 808,705	\$ 93,001	\$ 579,953	\$ 20,218
Leucadia Beach Fill	\$ 3,087,400	\$ 355,051	\$ 2,327,267	\$ 77,185
Moonlight Beach Fill	\$ 1,266,668	\$ 145,667	\$ 918,226	\$ 31,667
Cardiff Beach Fill	\$ 4,712,951	\$ 541,989	\$ 3,174,471	\$ 117,824
Fletcher Cove Beach Fill	\$ 375,847	\$ 43,222	\$ 259,642	\$ 9,396
Del Mar Beach Fill	\$ 3,710,557	\$ 426,714	\$ 2,563,322	\$ 92,764
Torrey Pines Beach Fill	\$ 1,174,078	\$ 135,019	\$ 762,950	\$ 29,352
Mission Beach Beach Fill	\$ 2,447,469	\$ 281,459	\$ 1,690,758	\$ 61,187
Imperial Beach Beach Fill	\$ 271,176	\$ 31,185	\$ 194,471	\$ 6,779
<b>Total</b>	<b>\$ 38,429,163</b>	<b>\$ 4,419,354</b>	<b>\$ 28,272,940</b>	<b>\$ 960,729</b>

**Table 6.12**  
**Direct Economic Impacts for the Modified Two MCY Project**

Site	Increased State Spending	Increased State Taxes	Increased Local Spending	Increased Local Taxes
S. Oceanside Beach Fill 570,000	\$ 8,818,004	\$ 1,014,070	\$ 7,054,403	\$ 220,450
S. Carlsbad North Beach Fill 218,000	\$ 16,675,658	\$ 1,917,701	\$ 12,661,777	\$ 416,891
S. Carlsbad South Beach Fill 142,000	\$ 8,615,952	\$ 990,834	\$ 6,542,066	\$ 215,399
Cardiff Beach Fill	\$ 4,712,951	\$ 541,989	\$ 3,174,471	\$ 117,824
Fletcher Cove Beach Fill	\$ 375,847	\$ 43,222	\$ 259,642	\$ 9,396
Del Mar Beach Fill	\$ 3,710,557	\$ 426,714	\$ 2,563,322	\$ 92,764
Torrey Pines 360,000	\$ 2,518,517	\$ 289,629	\$ 1,636,606	\$ 62,963
Mission Beach Beach Fill 150,000	\$ 3,687,504	\$ 424,063	\$ 2,547,398	\$ 92,188
Imperial Beach Beach Fill 180,000	\$ 461,280	\$ 53,047	\$ 330,801	\$ 11,532
<b>Total</b>	<b>\$ 49,576,270</b>	<b>\$ 5,701,271</b>	<b>\$ 36,770,486</b>	<b>\$ 1,239,407</b>

<sup>9</sup> These impacts are present values (discounted at 5 percent) over the 11 year life of the project. Yearly impacts vary with changes in beach width. More comprehensive data is available in Attachment 2.

**Table 6.13**  
**Direct Economic Impacts for the Three MCY Project**

Site	Increased State Spending	Increased State Taxes	Increased Local Spending	Increased Local Taxes
S. Oceanside Beach Fill	\$ 8,241,248	\$ 947,743	\$ 6,592,998	\$ 206,031
N. Carlsbad Beach Fill	\$ 2,586,241	\$ 297,418	\$ 1,854,748	\$ 64,656
S. Carlsbad Beach Fill	\$ 18,971,342	\$ 2,181,704	\$ 14,404,882	\$ 474,284
Batiquitos Beach Fill	\$ 1,018,326	\$ 117,107	\$ 730,280	\$ 25,458
Leucadia Beach Fill	\$ 3,868,335	\$ 444,858	\$ 2,915,933	\$ 96,708
Moonlight Beach Fill	\$ 1,575,802	\$ 181,217	\$ 1,142,322	\$ 39,395
Cardiff Beach Fill	\$ 5,970,253	\$ 686,579	\$ 4,021,343	\$ 149,256
Fletcher Cove Beach Fill	\$ 500,501	\$ 57,558	\$ 345,755	\$ 12,513
Del Mar Beach Fill	\$ 3,710,557	\$ 426,714	\$ 2,563,322	\$ 92,764
Torrey Pines Beach Fill	\$ 1,556,317	\$ 178,976	\$ 1,011,340	\$ 38,908
Mission Beach Beach Fill	\$ 2,126,214	\$ 244,515	\$ 1,468,829	\$ 53,155
Imperial Beach Beach Fill	\$ 352,262	\$ 40,510	\$ 252,620	\$ 8,807
<b>Total</b>	<b>\$ 50,477,396</b>	<b>\$ 5,804,901</b>	<b>\$ 37,304,372</b>	<b>\$ 1,261,935</b>

**Table 6.14**  
**Direct Economic Impacts for the Proposed Optimized Project**

Site	Increased State Spending	Increased State Taxes	Increased Local Spending	Increased Local Taxes
Oceanside Pier Beach Fill	\$ 2,859,114	\$ 328,798	\$ 2,091,034	\$ 71,478
N. Carlsbad Beach Fill	\$ 2,007,721	\$ 230,888	\$ 1,439,857	\$ 50,193
S. Carlsbad Beach Fill	\$ 12,069,114	\$ 1,387,948	\$ 9,164,041	\$ 301,728
Batiquitos Beach Fill	\$ 808,705	\$ 93,001	\$ 579,953	\$ 20,218
Leucadia Beach Fill	\$ 3,087,400	\$ 355,051	\$ 2,327,267	\$ 77,185
Moonlight Beach Fill	\$ 3,013,861	\$ 346,594	\$ 2,184,792	\$ 75,347
Cardiff Beach Fill	\$ 4,712,951	\$ 541,989	\$ 3,174,471	\$ 117,824
Fletcher Cove Beach Fill	\$ 375,847	\$ 43,222	\$ 259,642	\$ 9,396
Del Mar Beach Fill	\$ 3,710,557	\$ 426,714	\$ 2,563,322	\$ 92,764
Mission Beach Fill (South + Torrey)	\$ 13,732,023	\$ 1,579,183	\$ 9,486,341	\$ 343,301
Imperial Beach Beach Fill North	\$ 23,871	\$ 109,809	\$ 684,765	\$ 23,871
<b>Total</b>	<b>\$ 46,401,164</b>	<b>\$ 5,443,197</b>	<b>\$ 33,955,485</b>	<b>\$ 1,183,304</b>

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## CONCLUSIONS

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This report presents a benefit-cost analysis of several alternatives for consideration by DBW for implementation of a regional beach sand project in the San Diego region. Each project alternative has been examined in terms of its benefit-to-cost ratio to determine the best alternative. The B/C ratio for each alternative is shown in Table 7.1 below.

As indicated by the data, all of the proposed projects yield a benefit/cost ratio greater than one, with the optimized project having the highest B/C ratio of 2.0. However, these estimates are somewhat conservative in that only recreational benefits and some storm damage prevention benefits, accounting for the loss of public land, were considered. Considering other benefits, such as increased recreational usage, access and habitat for nesting and foraging shorebirds, and reducing emergency costs and business revenue losses, and enhancing public safety would further increase the ratios.

Overall, there are minimal differences in cost and project changes between the proposed 2001 RBSP rebuild and the optimized alternatives. However, given potential environmental, political, and other constraints as well as the success of 2001 RBSP, the proposed 2001 RBSP rebuild has been chosen as the proposed project for this Feasibility Study.

**Table 7.1**  
**Benefit-Cost Ratios**

Alternative		Benefit-Cost Ratio
1.	The Proposed 2001 RBSP Rebuild	1.5
2.	Modified Two MCY Project	1.3
3.	A Three MCY Project	1.1
4	The Optimized Project	2.0

**San Diego Association of Governments**  
**SHORELINE PRESERVATION WORKING GROUP**

December 6, 2007

AGENDA ITEM NO.: **5**

**Action Requested: DISCUSSION**

POTENTIAL REGIONAL INFRASTRUCTURE INVESTMENTS

File Number 3002800

**Introduction**

In January 2007, SANDAG staff presented information to the Board of Directors (Board) on regional infrastructure needs related to the Regional Comprehensive Plan (RCP). This discussion resulted in a request for more information on the three infrastructure types: habitat preservation, beach sand replenishment, and stormwater management. In response, the SANDAG Board held three workshops during May, June, and July 2007 on each of the three infrastructure types.<sup>1</sup> As a follow-up to the workshops, the Board held a meeting in October 2007 to discuss next steps toward potential regional infrastructure investments. Information requested by the Board in October will be presented and discussed at the Board retreat in January 2008.

**Discussion**

***Revised Cost Estimates***

The report and an attachment from the Board meeting on October 12, 2007, are included for information as Attachments 1 and 2 of this agenda item. SANDAG staff will provide an overview of the beach sand replenishment cost options. SANDAG staff also is requesting that the Shoreline Preservation Working Group (Working Group) review and comment on the cost options and other materials that were presented in October.

***Funding Options***

Attachment 3 of this agenda item includes the potential funding options for habitat preservation, beach sand replenishment, and stormwater management that were presented to the Board in January 2007. These options will likely be refined and presented at the Board retreat. SANDAG staff is requesting feedback from the Working Group on these potential options. Additionally, a summary table of potential revenues for habitat preservation, beach sand replenishment, and stormwater management is included in Attachment 4.

- Attachment: 1. Board of Directors Report, October 12, 2007 - Potential Regional Infrastructure Investments
2. *TransNet* Extension Work Program
  3. Excerpt from White Paper on Future Regional Funding for Habitat Preservation, Beach Sand Replenishment, and Stormwater Management
  4. Summary Table of Potential Revenues for Habitat Preservation, Beach Sand Replenishment, and Regional Stormwater Management

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<sup>1</sup> Copies of materials from these meetings can be found on the SANDAG Web site, [www.sandag.org](http://www.sandag.org)



**BOARD OF DIRECTORS**  
**OCTOBER 12, 2007**

**AGENDA ITEM NO. 07-10-3**  
**ACTION REQUESTED - DISCUSSION/POSSIBLE ACTION**

**POTENTIAL REGIONAL INFRASTRUCTURE INVESTMENTS**

File Number 3007200

**Introduction**

On January 12, 2007, the Board of Directors was presented with information regarding regional funding needs and potential future investments for stormwater management, beach sand replenishment, and habitat conservation. These three infrastructure areas were selected because of recommendations in the Integrated Regional Infrastructure Strategy (IRIS) of the Regional Comprehensive Plan (RCP) and because of specific language regarding funding for habitat preservation that was included in the *TransNet* Extension Ordinance. The Board requested staff to provide a series of three workshops on each of the individual infrastructure areas to determine the current status, future needs, and regional collaboration required to meet demands of these infrastructure types. The policy forums were held with the goal of ensuring all Board members were informed of the status of planning and implementation efforts for these three infrastructure types, and to provide direction on how, or if, SANDAG should be involved with future planning and implementation activities in these areas.

During the Board policy meetings, staff presented background information on stormwater management (May 11, 2007), beach sand replenishment (June 8, 2007), and habitat conservation (July 13, 2007), followed by a panel of experts that provided perspectives on the importance, challenges, and opportunities that exist to address these regional infrastructure needs. In addition to the general discussion by Board members during the three workshops, staff was asked to research a series of specific questions asked by various Board members and provide the information at the October 12, 2007, Board meeting. These questions have been addressed and are attached to this report.

This meeting will give the Board the opportunity to discuss approaches for investments in these infrastructure areas, estimated costs, the SANDAG role, if any, and a series of next steps required if the Board decides to have SANDAG pursue a regional solution to address these infrastructure needs.

**Recommendation**

The Board of Directors is asked to (1) direct SANDAG staff to develop a regional investment strategy, a plan of investment options, funding alternatives, and a timeline to achieve desired level of infrastructure investments to be presented to the SANDAG Board at its annual retreat; and (2) consider whether to direct staff to schedule a hearing for a discussion of an amendment to the *TransNet* Extension Ordinance to extend the regional habitat conservation funding measure timeline.

## Discussion

The three workshops provided the SANDAG Board with information explaining how stormwater management, beach sand replenishment, and habitat conservation can be viewed as regional infrastructure needs that should be addressed through a regional funding strategy. However, several questions remain regarding how a regional funding strategy should be developed and which agencies and stakeholders should be involved. As pointed out at the end of the July workshop, the environmental infrastructure areas discussed often overlap where investment into one (e.g., habitat conservation) may provide a benefit to another (e.g., water quality/stormwater management).

As discussed during the three workshops, two of the infrastructure areas, beach sand replenishment and habitat conservation, have strategic plans and cost estimates for various levels of investment. Stormwater management currently does not have a strategic plan, and the SANDAG Board could take several alternative approaches in addressing this need. This report will present refined cost estimates and approaches for investments into these three infrastructure areas at various levels.

In addition, as discussed during the July 13, 2007, workshop on habitat conservation, the voters in 2004 adopted the Environmental Mitigation Program (EMP) within the *TransNet* Extension Ordinance to help implement the regional habitat conservation plans through mitigation for regional and local transportation projects. The EMP was a significant first step toward successful long-term implementation of the habitat conservation plans; however, it was always recognized that additional funding would be required to successfully complete implementation of the plans. To this end, the Board included a provision in the 2004 *TransNet* Extension Ordinance that states:

*“SANDAG agrees to act on additional regional funding measures (a ballot measure and/or other secure funding commitments) to meet the long-term requirements for implementing habitat conservation plans in the San Diego region, within the timeframe necessary to allow a ballot measure to be considered by the voters no later than four years after passage of the TransNet Extension Ordinance (Environmental Mitigation Program Principle 10).”*

A discussion regarding the timing issues with this provision of the Extension Ordinance appears in the last section of this report.

### ***Refined Cost Estimates and Alternative Approaches***

#### *Beach Sand Replenishment*

Based on comments made at the June 8, 2007, SANDAG Policy Board workshop on regional beach sand replenishment, SANDAG staff has developed two cost options for long-term sand replenishment. While both options include sand replenishment, Option B also includes assumptions regarding construction of permanent sand retention structures.

#### *Option A – Regional Beach Sand Replenishments Every Five Years*

With input from the Shoreline Preservation Working Group (SPWG), the consulting firm of Moffatt and Nichol prepared an estimate outlining the detailed costs associated with implementing a beach sand replenishment project similar to the project implemented in 2001. This cost estimate assumes that regional replenishment would occur every five years, beginning in 2010 through 2030.

An escalation rate of 3 percent each year was assumed. The total estimated cost for beach sand replenishment activities similar to what was implemented in 2001 would be \$165 million (2008 dollars).

#### *Option B – Sand Retention Structures with Regional Beach Sand Replenishments Every Ten Years*

Construction of sand retention structures is recognized in the Shoreline Preservation Strategy, adopted in 1993, as one of a number of tactics that can be used to compliment the placement of sand on the region's beaches. Therefore, this option includes costs for regional sand retention structures as well as regional sand replenishment activities, which would occur less frequently.

SANDAG staff used the Regional Beach Sand Retention Strategy, prepared by Moffat and Nichol in 2001, to determine the costs of potential retention structures that could be placed throughout the region for Option B. The report primarily looks at the potential for breakwaters, groins, and artificial reefs to be placed in various locations throughout the region. For the purpose of this estimate, it was assumed that reefs would be built in Carlsbad, Encinitas, Solana Beach, and San Diego, and groins would be built in Oceanside and Coronado. A copy of the report can be found on the SANDAG Web site: [www.sandag.org/shoreline](http://www.sandag.org/shoreline).

This cost estimate for Option B assumes that regional replenishment would occur every ten years, 2010 through 2030, rather than every five years as assumed in Option A. An escalation rate of 3 percent each year also was assumed. The total estimated cost for beach sand replenishment activities similar to what was implemented in 2001 plus retention structures is \$200 million (2008 dollars).

#### *Habitat Conservation*

Each of the regional habitat conservation plans (Multiple Species Conservation Plan (MSCP) and North County Multiple Habitat Conservation Plan, along with draft plans for unincorporated north county and unincorporated east county) call for acquisition of habitat lands, provision of management of those lands to promote habitat conservation, and periodic monitoring to assess the effectiveness of the plans in conserving sensitive species. As discussed at the July 13 workshop, each habitat conservation plan has a target goal for land acquisition, management, and monitoring. The IRIS estimates for habitat conservation were updated in 2007 and presented to the SANDAG Board on January 12 and July 13, 2007.

The IRIS estimate of \$1.5 billion was based upon acquisition assumptions and land management and monitoring costs, though it was recognized that refinements to this number would be required. Since July 13, SANDAG staff has worked with several of jurisdictions (County of San Diego, City of San Diego, and City of Carlsbad) to get updated estimates on acquisition needs and land management costs. These updated costs were compiled and presented to the Environmental Mitigation Program Working Group (EMPWG) on September 11, 2007. While the EMPWG did not reach consensus on a specific cost estimate, there was general agreement that an estimate that included a range of costs would be more appropriate at this time.

SANDAG staff revised the IRIS 2007 update for habitat conservation based upon the information provided by the jurisdictions which resulted in a revised estimate range of \$1.8 billion to \$2.4 billion. The low end of the range is based upon recent acquisition requirements and land management costs provided by the jurisdictions. The high end represents assumptions made in the



original IRIS in 2003 that private land dedicated to the County of San Diego would not require an endowment from private land owners for basic land stewardship management, and would therefore, be required through another mechanism. Adaptive biological management and regional biological monitoring would still be considered a regional obligation under both cost estimates.

Several policy decisions could reduce the overall cost in this estimated range. These include the amount of *TransNet* funding to be credited toward the regional funding obligation, possible provision for a perpetual endowment for management and monitoring, and the amount of land that is required to be preserved for the East County MSCP (anticipated adoption of 2009). These policy decisions could decrease the required funding by \$0.2 billion to \$1 billion from the estimate range of \$1.8 billion to \$2.4 billion above.

### *Stormwater Management*

There has been substantial progress made by the region's 18 incorporated cities, County of San Diego, the San Diego Unified Port District, and the San Diego County Regional Airport Authority (Copermittees) under the 2007 National Pollutant Discharge Elimination System (NPDES) Permit. Working with the Regional Water Quality Board (Regional Board) and the County of San Diego, SANDAG staff utilized two methods to estimate total regional stormwater compliance costs in 2006 dollars from 2010 through 2030 to meet federal and state requirements.<sup>1</sup>

First, NPDES permit compliance costs per household determined by a study prepared in January 2004 for the California State Water Resources Control Board, prepared by Office of Water Programs, California State University, Sacramento (CSUS) were multiplied by the SANDAG 2006 estimate for the number of households within the region. The annual cost estimate for compliance with the NPDES permit through 2030 is \$1.5 billion (based on an average per household cost).<sup>2</sup>

The second cost estimate combines all current Jurisdictional Urban Runoff Management Program (JURMP) cost estimates. The JURMP, which is developed and implemented by each jurisdiction, describes what activities are being conducted to reduce the pollution levels found in their municipal separate storm sewer systems to the maximum extent practicable. The program establishes clear minimum stormwater management requirements and controls for four primary activities: commercial, industrial, municipal, and new construction/development. The annual cost estimate using the Copermittees' JURMPs is \$3.4 billion, escalated at three percent through 2030.

These two estimates are imperfect. The study completed by CSUS did not account for activities, such as street sweeping and trash collection, that are not considered permit compliance costs by the Regional Board, but which are accounted for in many of the jurisdictional programs. Additionally, there are disparities in how costs are accounted and expenditures are tracked for each of the local jurisdictions. Lastly, these estimates should not be compared but should be used to provide the range of potential costs. The low end estimate is an average for households in California, and the high end estimate represents actual costs.

As stated above, these estimates only address costs associated with federal and state requirements to comply with current stormwater regulations; it would not proactively address comprehensive

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<sup>1</sup> Both cost estimates assume that the Copermittees should be absorbing the costs for stormwater management, monitoring, education and outreach, and California Stormwater Quality Administration (CASQA) membership (\$.044 billion) through 2030.

<sup>2</sup> The NPDES Stormwater Cost Survey looked at five municipalities and one metropolitan area within California that demonstrate meaningful progress toward maximum extent practicable (MEP) compliance.

water quality enhancement in the region. In follow-up discussions with Copermittees and stakeholders, there was a consensus that the region should consider an alternate approach that may get the region closer to meeting clean water goals instead of focusing on meeting permit requirements, which change every five years when the NPDES permit is reissued. This approach would involve the preparation and adoption of a regional water quality improvement plan (plan).

The plan would build off of the water quality planning efforts throughout the region, such as the various watershed management plans and the Integrated Regional Water Management Plan (IRWM). The IRWM Plan preparation included many regional stakeholders who worked to establish regional objectives and water management strategies that aided in the development of a list of potential implementation projects proposed for state funding (Propositions 50 and 84). This approach would address clean water at the regional level, outlining strategies that would help to meet water quality objectives within and across watersheds, identify water quality problems and solutions, and organize water quality information into a centralized database for a more comprehensive analysis. Most importantly, the plan would reach out to regional stakeholders to identify existing and new regional water quality goals, objectives, and targets. Finally, the planning process would include defining an implementation strategy that would meet these regional goals, objectives, and targets. The results of the plan would be included in the RCP to coordinate and plan for the implementation of clean water in the region.

### **Next Steps**

If the SANDAG Board determines that SANDAG should have a role in pursuing investments for one or more of these regional infrastructure needs, staff would provide the Board with the following items for consideration in January prior to its annual retreat:

1. A package of alternatives of infrastructure needs along with a cost for various levels of investments for each of the three infrastructure types,
2. Funding options to achieve the desired infrastructure investments,
3. A timeline of necessary steps to achieve the various funding options,
4. Identification of other regional funding needs that should be considered along with the three infrastructure types outlined in this report, if any,
5. Establishment of an ad hoc steering committee of Board members that to provide input into the formation of funding options,
6. An analysis of the legislative changes necessary for SANDAG or other entities to seek funding for environmental infrastructure investments through the RCP,<sup>3</sup>
7. A legal analysis for how these environmental infrastructure measures could be accommodated into a potential ballot measure, one of the funding options,

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<sup>3</sup> The SANDAG Office of General Counsel has concluded that an amendment to the SANDAG taxation authority would be required to make the full range of the environmental infrastructure projects discussed in this report eligible for funding by the tax. The RCP, adopted by the SANDAG Board in July 2004, includes these environmental infrastructure components and could serve as the justification for modification to the taxation authority.

8. An analysis of the process requirements for environmental compliance with the California Environmental Quality Act (CEQA), such as a possible supplement to the RCP Final Environmental Impact Report, and
9. The budgetary demands and Overall Work Program changes necessary to implement SANDAG Board direction.

### **Direction Requested**

A review of the timeline and Work Program for the *TransNet* Extension Ordinance (Attachment 2) indicates that, given the various steps necessary to develop a new ballot measure to finance habitat conservation plans, it would be very difficult to do so by November 2008 as referenced in the *TransNet* Extension Ordinance.<sup>4</sup> Therefore, the Board should consider whether to direct staff to schedule a SANDAG Board meeting to address a revision to the *TransNet* Extension Ordinance to modify EMP Principle 10 in the Ordinance, to extend the time for the SANDAG Board to *act on* additional regional funding measures for habitat conservation. Extension of the time would require a public hearing and a two-thirds vote of the SANDAG Board in support of an amendment pursuant to the *TransNet* Extension Ordinance.

In conclusion, the SANDAG Board has engaged in discussions over the past six months on three regional environmental infrastructure areas that currently do not have a system in place to address funding and prioritize expenditures. Funding for these regional infrastructure needs could be addressed regionally in a collaborative manner with the SANDAG member agencies and interested stakeholders. Staff is seeking the Board's direction to initiate the next steps to address the legal, policy, and procedural requirements necessary to bring back a recommendation on a timeline, specific approaches, and costs for each of the infrastructure investments, and the exploration of existing and potential funding options for these infrastructure needs.

GARY L. GALLEGOS  
Executive Director

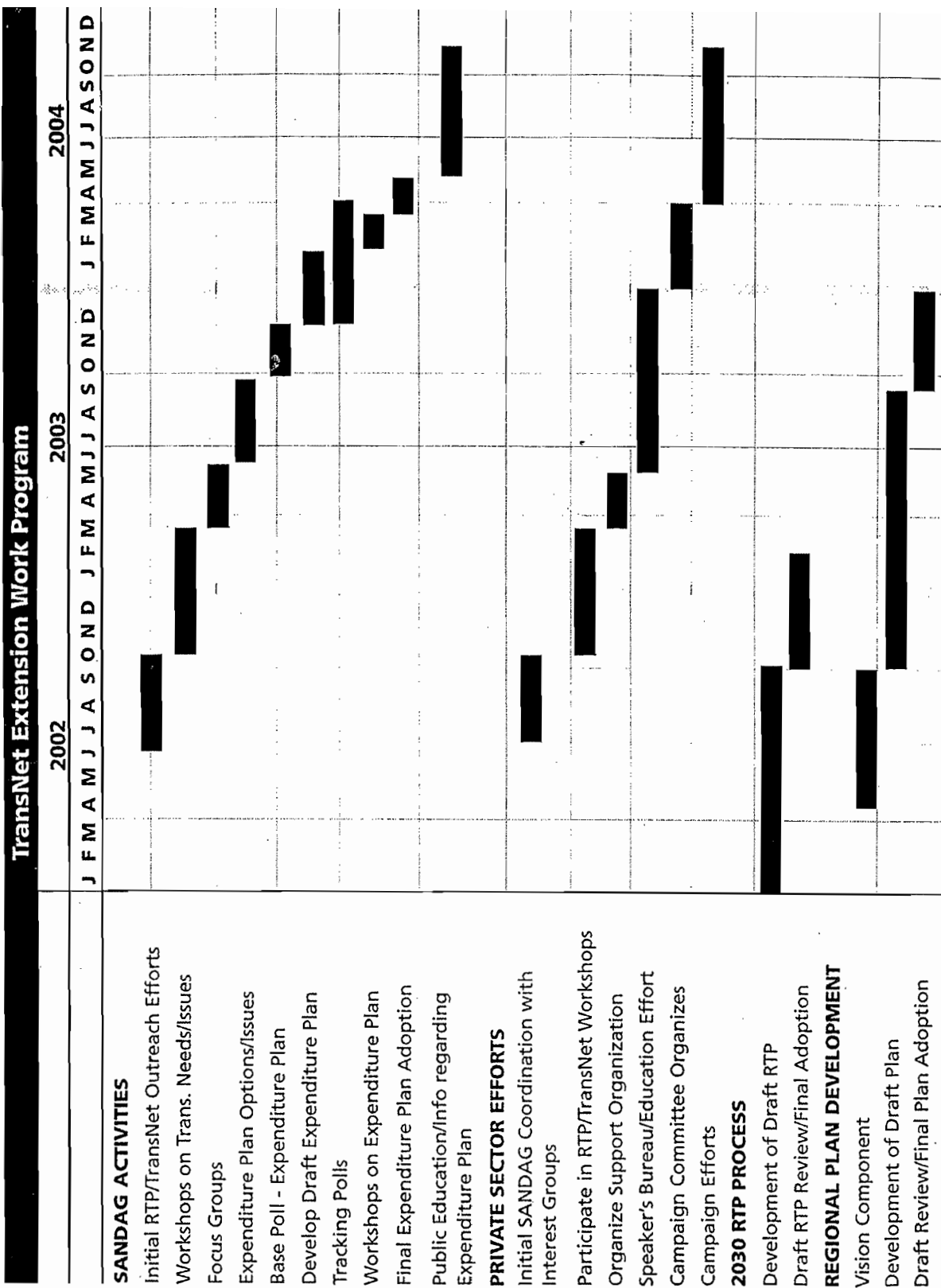
Attachments: 1. Response to Regional Environmental Infrastructure Questions  
2. *TransNet* Extension Work Program

Key Staff Contact: Keith Greer, (619) 699-7390, kgr@sandag.org

No Budget Impact

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<sup>4</sup> This timeline from 2002 does not take into account the time needed to extend SANDAG's taxation authority to cover regional infrastructure projects related to the RCP via new legislation.



# *TransNet* MEASURE RENEWAL PROGRAM

<b>Target Dates</b>	<b>SANDAG Actions</b>
June to September 2002	<p><b>Initial RTP/TransNet Outreach Efforts:</b> Initial community outreach (private, small group meetings with opinion leaders, interest groups, etc.) / Public education programs focused on long-term transportation needs versus revenue limits. These efforts to be coordinated with 2030 RTP development process.</p> <p><b>Workshops on Transportation Needs/Issues:</b> Transportation Committee/Board workshop discussions on various program elements and transportation issues. Discussions to be coordinated with 2030 RTP process. Efforts also begin in this timeframe in support of legislation to reduce the voter threshold.</p>
September 2002 to March 2003	<p><b>Focus Groups:</b> A series of focus groups to be conducted to gain input on issues, projects and programs related to the development of an expenditure plan.</p>
June to September 2003	<p><b>Expenditure Plan Options/Issues:</b> Based on focus group findings, Staff/Consultant to work with Transportation Committee/Board on refining issues and options for the expenditure plan. Potential for a short tracking poll to frame issue for baseline poll later.</p>
October to November 2003	<p><b>Base Poll Expenditure Plan:</b> Conduct Expenditure Plan baseline poll focusing on key program and project options, remaining policy issues, and testing of ballot language options.</p>
December 2003 to January 2004	<p><b>Develop Draft Expenditure Plan:</b> Based on survey results and ongoing discussions with interest groups, etc., staff/consultant develop a draft expenditure plan</p>
December 2003 to March 2004	<p><b>Tracking Polls:</b> One or two short tracking polls may be needed to test outstanding issues and refine Expenditure Plan components.</p>
February to March 2004	<p><b>Workshops on Expenditure Plan:</b> Transportation Committee / Board to hold workshops/hearings to obtain input on Draft Expenditure Plan.</p>

# *TransNet* MEASURE RENEWAL PROGRAM

Target Dates	SANDAG Actions
March to April 2004	<p><b>Final Expenditure Plan Adoption:</b> Based on any refinements needed after the draft review process, the first and second readings of the final expenditure plan and ordinance are conducted (to be completed after 55% vote threshold measure is decided, if on the Primary Ballot).</p>
March or June 2004 Primary Election	<p>Potential vote on constitutional measure to lower the voter threshold to 55%</p>
Immediately After Final Expenditure Plan Process to November 2004	<p><b>Public Education/Info. regarding Expenditure Plan:</b> Public education/ speakers bureau to provide factual explanation of the adopted Expenditure Plan and Ordinance</p>

# Private Sector/Community Support Program

Target Dates	Private Sector Support Actions
June to October 2002	<b>Initial SANDAG Coordination with Interest Groups:</b> SANDAG and Program Consultant meet with potential support interest groups on the overall sales tax extension issue to survey their concerns, questions and needs, and to enlist support of legislation to lower voter threshold in the 2003 State Legislative Session.
October 2002 to March 2003	<b>Participate in RTP/TransNet Workshops:</b> Community support groups participate in SANDAG RTP/sales tax extension hearings on transportation future plans/programs/funding issues.
March to May 2003	<b>Organize Support Organization:</b> Supporters organize "coalition" support organization, such as a 501(3)(c) foundation for voter research and public education effort on San Diego transportation needs.
May to December 2003	<b>Speaker's Bureau/Education Effort:</b> Coalition support group implements countywide speaker's bureau based on voter opinion research, transportation needs and importance of extending the local sales tax. A constant effort is needed to broaden the breadth and depth of community understanding and support of dealing with the need.
January to March 2004	<b>Campaign Committee Organizes:</b> Formal campaign committee is organized, lead campaign consultant is hired, a work program is developed from April 2004 through election day November 2004, and campaign budget adopted and fundraising is started for measure campaign.
April 2004	<b>Ballot Measure Finalized:</b> SANDAG adopts final expenditure plan and ordinance for November 2004 ballot.
April to November 2004	<b>Campaign Efforts:</b> Formal campaign commences and continues through election day.

Excerpt from: White Paper on Future Regional Funding for Habitat Preservation,  
Beach Sand Replenishment, and Stormwater Management

***Funding Options***

There is a range of potential solutions that could be implemented at the regional level to help cover the long-term funding requirements for the three specified infrastructure programs. Consideration of these possible solutions and alternatives generates a number of policy questions, which will be raised with the Board of Directors at the SANDAG Board Retreat in late January/early February.

To cover the funding shortfalls requires exploring both potential increases in existing funding sources used by local jurisdictions as well as creation of new funding programs. Staff has researched new funding sources outlined within the RCP for these infrastructure needs, including user fees such as rental cars fees and parking fees at the beaches, additional sales tax, and other local mechanism revenues such as development impact fees, property tax assessments, and transient occupancy tax (TOT) increases (Attachment 2).<sup>1</sup>

The research includes potential revenue generation from each funding source, what process it would take to implement each, and how they have been used in other communities. (Please note that some of these possible revenue sources may be considered for addressing transportation needs as well, or may be considered for supporting a combination of nontransportation and transportation related projects).

*Rental Car Fees*

Currently there are at least 80 car rental taxes in effect in 38 states and 24 new car rental taxes under consideration. The dedicated purpose of the funds varies widely but with a high percentage being used to fund specific sports facilities, tourism, and public transportation projects. Fees either are levied as a dollar-per-day charge or a percentage of the total base rental price.

*Parking Fees at the Beaches*

In 2002, SANDAG staff conducted an informal assessment of potential revenues to be collected from beach parking in San Diego coastal communities. The estimate was based on charging one dollar per hour of parking at City-owned parking spots within a one-quarter mile of the beach.

*Additional Regional Sales Tax*

An increase in sales tax is another potential funding option to meet the region's infrastructure needs. Regional sales tax would generate the greatest amount of flexibility and stability as the revenues would be controlled regionally and better protected against inflation. However, contrary to the last approval of *TransNet* where an existing tax was extended, this would represent a tax increase. Therefore, before the region embarks on asking the voters for an increase, careful

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<sup>1</sup> RCP suggested that regional habitat needs could be funded partially by transportation project mitigation banking, and by special assessments and/or a special tax. For beach sand replenishment, RCP proposed dedicating a portion of revenues from the transient occupancy tax to fund the program as well as considering special assessments and/or a special tax. The funding sources identified in RCP for stormwater management included a regional stormwater impact fee, special assessment, or special tax, together with federal and state assistance.



assessment of priority issues for the voters should be made. Among the priorities evaluated could be dedicated funding for projects such as open space, habitat acquisition, sand replenishment at local beaches, and water quality improvement projects as well as funding for additional transportation capital and operational improvements, including transit.

#### *Other Local Revenues Mechanisms*

The region also could explore a number of revenue generation mechanisms that traditionally have been pursued in other jurisdictions at the local level. Some of these include Development Impact Fees, property tax assessments, and TOT. As required by Proposition 218, any tax that is collected for a special purpose (e.g., habitat or water quality), as the proposals in this report would be, is defined as a “special tax” subject to the two-thirds voter approval.

- Development Impact Fees (DIFs) on residential, commercial, and industrial development could be considered to help fund these regional infrastructure needs. Additional nexus studies could be prepared to demonstrate the impact new development has on habitat and water quality and to determine an appropriate fair share contribution to help fund and mitigate impacts to existing and future facilities. Public agencies also may find it hard to bond against projected DIF revenue since the revenues materialize only once the development is implemented.
- Property tax assessments have been imposed by many cities and counties to help finance general obligation bonds for local stormwater management programs. Los Angeles voters overwhelmingly supported Proposition O in the November 2004 election (approved with 76.3 percent of the vote), authorizing the City of Los Angeles to issue \$500 million in general obligation bonds for projects that protect public health by cleaning up and preventing pollution in regional waterways and beaches, improving or protecting water quality, providing flood protection, and increasing water conservation, habitat, and open space. Residential property owners were assessed a certain percentage of their property value for 24 years (average household pays \$35 per \$350,000 assessed value). Other regions have charged residents a flat annual fee known as a parcel tax.

TOT (hotel/motel visitor’s tax) has been discussed by the SANDAG Shoreline Preservation Working Group as a method for funding the region’s beach sand replenishment program. TOT would provide a reliable source and is consistent with the goal of improving visitor-serving facilities. However, any specific allocation of TOT funds to beach sand replenishment would have to be considered and evaluated by each jurisdiction responsible for allocating those funds. Two local communities that have already implemented a TOT specifically for beach sand replenishment are Solana Beach and Encinitas. Revenue estimates are based on 1 percent to 3 percent increase of TOT for all other cities and the County of San Diego, dedicated to beach sand replenishment.

Summary Table of Potential Revenues for Habitat Preservation, Beach Sand Replenishment, and Regional Stormwater Management

	Potential Funds Generated (\$M)	Level of Flexibility	What's needed to get it passed?*	How easy is it to collect and administer?	Who controls and administers the funds?
<b>1. User Fee Mechanisms</b>					
Rental Car Taxes (\$2 day - \$6 day)	\$223 - \$669	High-Medium	2/3 Local voter-approval	Medium	Local/Regional
Parking Fee at Beaches (summer only - summer/winter)	\$336 - \$448	Medium		Medium	Local/Regional
<b>2. Additional Sales Tax Measures</b>					
Additional Sales Tax** (1/4 cent - 1/2 cent)	\$4,680 - \$9,370	High	2/3 County voter-approval	Easy	Regional
<b>3. Other Local Mechanism Revenues</b>					
Transient Occupancy Tax (TOT) at Beach communities - 1% to 3% increase for each city	\$212 - \$636	Low	2/3 local voter-approval	Medium	Local/Regional
TOT at all jurisdictions*** 1% - 3% increase	\$251 - \$752	Low	2/3 local voter-approval	Medium	Local/Regional
Development Impact Fees on new residential and commercial 2011 - 2030	TBD	Low	2/3 local voter-approval	Medium	Local/Regional
Special Property Tax Assessment - residential - parcel tax (range \$15 - \$50 per parcel per year)	\$260 - \$867				
OR		Low	2/3 local voter-approval	Medium	Local/Regional
1/1000% of assessed value (10 - 20 yrs.)****	\$238 - \$476				

\* As appropriate, it assumes that the revenue generation mechanism is used to pay for specific regional infrastructure and therefore is a "special tax" subject to the two-thirds supermajority requirement.

- High Flexibility: Full Local Control
- Medium Flexibility: Some Local Control, Uses may be Formula or Statute Driven
- Low Flexibility: Limited Local Control, Uses are Formula or Statute Driven

\*\* If utilizing SANDAG's sales tax authorization to apply up to 1/2 cent more, need to show a nexus with transportation.

**San Diego Association of Governments**  
**SHORELINE PRESERVATION WORKING GROUP**

December 6, 2007

AGENDA ITEM NO.: **6**

**Action Requested: DISCUSSION/POTENTIAL RECOMMENDATION**

STATUS AND NEXT STEPS FOR POTENTIAL REGIONAL  
BEACH SAND REPLENISHMENT PROJECT

File Number 3002800

**Introduction**

Currently, SANDAG staff is working with the coastal cities to finalize a memorandum of understanding (MOU) between each coastal city and SANDAG. The next steps for preliminary planning activities include the development of a scope of work and initiation of the procurement process. Currently, work is scheduled to begin in late Spring 2008. In order to meet this schedule, the MOUs should be approved by the city councils by the end of the year. Those jurisdictions that are unable to meet this schedule should notify SANDAG staff.

In addition, in August, SANDAG submitted a Feasibility Study to the California Department of Boating and Waterways (DBW) for their consideration of funding for a regional beach sand project similar to the 2001 Regional Beach Sand Project (RBSP). When the draft budget is released in January, the region will find out if funding has been recommended by DBW. If the project is included in the budget and approved, funding would likely be available in FY 2009. In the meantime, the region needs to determine how the required match will be divided among the participating local jurisdictions.

**Discussion**

In September, the SANDAG Board of Directors (Board) approved the allocation of funds for preliminary planning activities, which was an allocation based on miles of coastline. As part of discussions leading up to the Board meeting, several jurisdictions indicated that the allocation based on miles of coastline may not be an appropriate way to allocate the match to the remaining project costs. Several suggestions have been made as to other appropriate allocations, but no recommendations have been made by the staff subgroup, who discussed this issue in September, or the Working Group.

SANDAG staff is requesting that the Working Group consider the allocations presented in Attachment 1 and 2 of this item. These allocations are draft options and scenarios that are available for consideration by the Working Group for planning purposes only. The goal is to provide the Working Group with an idea of approximate allocation costs.

Attachment 1 provides a breakdown of costs for each coastal jurisdiction based on miles of coastline, amount of cubic yards being placed on receiver beaches, miles of coastline restored as part of the RBSP, and population. Attachment 2 combines some of the options in Attachment one, creating scenarios for consideration. Scenarios were created because it was suggested by the staff subgroup that a combination of options be considered. Scenarios one, two, and three are averages and scenario four is a weighted average. SANDAG staff welcomes input on additional options and scenarios that are not included in this report.

The next steps would be for the Working Group to make a recommendation to the Regional Planning Committee, and ultimately take the recommendations to the Board. Upon approval of an allocation by the Board, SANDAG staff will prepare a project funding plan to provide DBW. The funding plan will outline sources of funds to be used to complete the project.

- Attachment: 1. Draft Potential Regional Beach Sand Project Funding Allocation Options  
2. Draft Potential Regional Beach Sand Project Funding Allocation Scenarios

Key Staff Contact: Shelby Tucker, (619) 699-1916; stu@sandag.org

**1. CALCULATIONS BASED ON MILES OF COASTLINE:**

	Miles	%	Contribution toward entire project (minus planning costs)	Contribution toward 25% of entire project (minus planning costs)	Contribution toward 25% of entire project based on beach ownership (minus planning costs)
Carlsbad (0% local)	6.5	16.09%	\$3,554,553	\$888,638	\$0
Coronado	3.1	7.10%	\$0	\$0	\$0
Del Mar (local)	3	7.43%	\$1,640,563	\$410,141	\$410,141
Encinitas (75% state)	5.8	14.36%	\$3,171,755	\$792,939	\$198,235
Imperial Beach (local)	2.7	6.68%	\$1,476,507	\$369,127	\$369,127
Oceanside (local)	3.6	8.91%	\$1,968,676	\$492,169	\$492,169
San Diego (50% local)	17.3	42.82%	\$9,460,581	\$2,365,145	\$1,182,573
Solana Beach (local)	1.5	3.71%	\$820,282	\$205,070	\$205,070
<b>total</b>	<b>40.4</b>	<b>100.00%</b>	<b>\$22,092,917</b>	<b>\$5,523,229</b>	<b>\$2,857,314</b>

**2. CALCULATIONS BASED ON AMOUNT OF CUBIC YARDS BEING PLACED ON RECEIVER BEACHES:**

	Cubic Yards of Sand	%	Contribution toward entire project (minus planning costs)	Contribution toward 25% of entire project (minus planning costs)	Contribution toward 25% of entire project based on beach ownership (minus planning costs)
Carlsbad (0% local)	385,000	18.42%	\$4,069,748	\$1,017,437	\$0
Coronado	0	0.00%	\$0	\$0	\$0
Del Mar (local)	180,000	8.61%	\$1,902,739	\$475,685	\$475,685
Encinitas (75% state)	455,000	21.77%	\$4,809,702	\$1,202,426	\$300,606
Imperial Beach (local)	120,000	5.74%	\$1,268,493	\$317,123	\$317,123
Oceanside (local)	420,000	20.10%	\$4,439,725	\$1,109,931	\$1,109,931
San Diego (50% local)	390,000	18.66%	\$4,122,602	\$1,030,650	\$515,325
Solana Beach (local)	140,000	6.70%	\$1,479,908	\$369,977	\$369,977
<b>total</b>	<b>2,090,000</b>	<b>100.00%</b>	<b>\$22,092,917</b>	<b>\$5,523,229</b>	<b>\$3,088,648</b>

\* These draft options cover the balance of costs remaining after completion of preliminary planning activities.

**Draft Potential Regional Beach Sand Replenishment Project Funding Allocation Options\***

**3. CALCULATIONS BASED ON MILES OF COASTLINE RESTORED AS PART OF THE 2001 RBSP:**

	Miles	%	Contribution toward entire project (minus planning costs)	Contribution toward 25% of entire project (minus planning costs)	Contribution toward 25% of entire project based on beach ownership (minus planning costs)
Carlsbad (0% local)	1.29	17.81%	\$3,934,749	\$983,687	\$0
Coronado	0	0.00%	\$0	\$0	\$0
Del Mar (local)	0.81	11.24%	\$2,483,244	\$620,811	\$620,811
Encinitas (75% state)	1.6	22.13%	\$4,889,163	\$1,222,291	\$305,573
Imperial Beach (local)	0.66	9.09%	\$2,008,246	\$502,062	\$502,062
Oceanside (local)	1.17	16.13%	\$3,563,588	\$890,897	\$890,897
San Diego (50% local)	0.92	12.70%	\$2,805,800	\$701,450	\$350,725
Solana Beach (local)	0.79	10.90%	\$2,408,128	\$602,032	\$602,032
total	7.23	100.00%	\$22,092,917	\$5,523,229	\$3,272,099

**4. CALCULATIONS BASED ON POPULATION:**

	Population	%	Contribution toward entire project (minus planning costs)	Contribution toward 25% of entire project (minus planning costs)	Contribution toward 25% of entire project based on beach ownership (minus planning costs)
Carlsbad (0% local)	97,720	5.79%	\$1,279,329	\$319,832	\$0
Coronado	26,248	1.53%	\$0	\$0	\$0
Del Mar (local)	4,524	0.27%	\$59,227	\$14,807	\$14,807
Encinitas (75% state)	59,037	3.50%	\$772,899	\$193,225	\$48,306
Imperial Beach (local)	27,563	1.63%	\$360,849	\$90,212	\$90,212
Oceanside (local)	175,171	10.38%	\$2,293,300	\$573,325	\$573,325
San Diego (50% local)	1,310,199	77.64%	\$17,152,838	\$4,288,210	\$2,144,105
Solana Beach (local)	13,327	0.79%	\$174,474	\$43,619	\$43,619
total	1,687,541	100.00%	\$22,092,917	\$5,523,229	\$2,914,374

\* These draft options cover the balance of costs remaining after completion of preliminary planning activities.

**Draft Potential Regional Beach Sand Replenishment Project Funding Allocation Scenarios\***

**Scenario 1:**

cubic yards of sand, miles of coastline restored, miles of coastline, and population

	Miles	Cubic Yards of Sand	Miles '01	Population	Average Contribution toward 25% of project (minus planning costs)	Average Contribution toward 25% of entire project based on beach ownership (minus planning costs)
Carlsbad (0% local)	6.5	385,000	1.29	97,720	\$802,399	\$0
Coronado	3.1	0	0	26,248	\$0	\$0
Del Mar (local)	3	180,000	0.81	4,524	\$380,361	\$380,361
Encinitas (75% state)	5.8	455,000	1.6	59,037	\$852,720	\$213,180
Imperial Beach (local)	2.7	120,000	0.66	27,563	\$319,631	\$319,631
Oceanside (local)	3.6	420,000	1.17	175,171	\$766,581	\$766,581
San Diego (50% local)	17.3	390,000	0.92	1,310,199	\$2,096,364	\$1,048,182
Solana Beach (local)	1.5	140,000	0.79	13,327	\$305,175	\$305,175
total	40.4	2,090,000	7.23	1,687,541	\$5,523,231	\$3,033,109

**Scenario 2:**

Cubic yards of sand and miles of restored coastline

	Cubic Yards of Sand	%	Miles '01	%	Average Contribution toward 25% of project (minus planning costs)	Average Contribution toward 25% of entire project based on beach ownership (minus planning costs)
Carlsbad (0% local)	385,000	18.42%	1.29	17.81%	\$1,000,562	\$0
Coronado	0	0.00%	0	0.00%	\$0	\$0
Del Mar (local)	180,000	8.61%	0.81	11.24%	\$548,248	\$548,248
Encinitas (75% state)	455,000	21.77%	1.6	22.13%	\$1,212,359	\$303,090
Imperial Beach (local)	120,000	5.74%	0.66	9.09%	\$409,593	\$409,593
Oceanside (local)	420,000	20.10%	1.17	16.13%	\$1,000,414	\$1,000,414
San Diego (50% local)	390,000	18.66%	0.92	12.70%	\$866,050	\$433,025
Solana Beach (local)	140,000	6.70%	0.79	10.90%	\$486,005	\$486,005
total	2,090,000	100.00%	7.23	100.00%	\$5,523,231	\$3,180,375

\* These draft options cover the balance of costs remaining after completion of preliminary planning activities.

# Draft Potential Regional Beach Sand Replenishment Project Funding Allocation Scenarios\*

## Scenario 3:

cubic yards of sand, miles of coastline restored, and population

	Cubic Yards of Sand	Miles '01	Population	Average Contribution toward 25% of project (minus planning costs)	Average Contribution toward 25% of entire project based on beach ownership (minus planning costs)
Carlsbad (0% local)	385,000	1.29	97,720	\$773,652	\$0
Coronado	0	0	26,248	\$0	\$0
Del Mar (local)	180,000	0.81	4,524	\$370,434	\$370,434
Encinitas (75% state)	455,000	1.6	59,037	\$872,647	\$218,162
Imperial Beach (local)	120,000	0.66	27,563	\$303,132	\$303,132
Oceanside (local)	420,000	1.17	175,171	\$858,051	\$858,051
San Diego (50% local)	390,000	0.92	1,310,199	\$2,006,770	\$1,003,385
Solana Beach (local)	140,000	0.79	13,327	\$338,543	\$338,543
total	2,090,000	7.23	1,687,541	\$5,523,229	\$3,091,707

## Scenario 4:

weighted: cubic yards of sand (25%), miles of coastline(25%), and population(50%)

	Cubic Yards of Sand	Miles '01	Population	Average Contribution toward 25% of project (minus planning costs)	Average Contribution toward 25% of entire project based on beach ownership (minus planning costs)
Carlsbad (0% local)	385,000	1.29	97,720	\$636,435	\$0
Coronado	0	0	26,248	\$0	\$0
Del Mar (local)	180,000	0.81	4,524	\$228,860	\$228,860
Encinitas (75% state)	455,000	1.6	59,037	\$595,454	\$148,863
Imperial Beach (local)	120,000	0.66	27,563	\$216,669	\$216,669
Oceanside (local)	420,000	1.17	175,171	\$687,188	\$687,188
San Diego (50% local)	390,000	0.92	1,310,199	\$2,993,054	\$1,496,527
Solana Beach (local)	140,000	0.79	13,327	\$165,571	\$165,571
total	2,090,000	7.23	1,687,541	\$5,523,229	\$2,943,677

\* These draft options cover the balance of costs remaining after completion of preliminary planning activities.



**San Diego Association of Governments**  
**SHORELINE PRESERVATION WORKING GROUP**

December 6, 2007

AGENDA ITEM NO.: **10**

**Action Requested: INFORMATION**

2008 SHORELINE PRESERVATION WORKING GROUP MEETING SCHEDULE

File Number 3002800

**Introduction**

The Shoreline Preservation Working Group (SPWG) generally meets the first Thursday of every other month at 11:30 a.m. in SANDAG's 7th Floor Conference Room. The meeting schedule for 2007 is listed below.

**Discussion**

Please note that meetings are subject to change and notification will be provided to all members and interested parties. Cancellation notices also are posted on the Web site, [www.sandag.org/shoreline](http://www.sandag.org/shoreline) in advance of the meeting.

2008 SPWG Meetings:

- February 7
- April 3
- June 5
- August 7
- October 2
- December 4

Please contact SANDAG staff if you would like to suggest a topic for discussion at a future meeting.

Key Staff Contact: Shelby Tucker, (619) 699-1916; [stu@sandag.org](mailto:stu@sandag.org)