APPENDIX B

Proposed River and Floodplain Treatments by Alternative

Upper Truckee River Restoration and Golf Course Reconfiguration Project
Appendix B

Proposed River and Floodplain Treatments by Alternative

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Introduction

The following text descriptions and tables of information identify the proposed river and floodplain treatment activities and features for each of the alternatives carried forward for environmental analysis. These descriptions have been developed through an iterative conceptual design process between State Parks and their consultants over the last few years. Most of the treatment types and locations were originally recommended in prior assessment and preliminary design information (SH+G January 2004, March 2004, October 2004; River Run 2006). However, the following proposed treatments by reach and sub-reach reflects integration of prior recommendations with updated information by State Parks, River Run, and Valley & Mountain Consulting as of spring 2009. These descriptions are intended to be consistent with and at greater detail than the descriptions provided within the body of Chapter 2, "Project Alternatives" of the draft EIR/EIS/EIS. Additional information about each treatment type is included in Appendix C "Conceptual Treatment Descriptions and Typical Sketches".

River Reaches and Sub-Reaches

Approximately 12,000 feet of the Upper Truckee River main channel is within the study area. This reach of the river has been broken into river stations (RS) that extend from just upstream of U.S. 50, where it intersects with Sawmill Road and Elks Club Road (RS 00), to just downstream of Lake Baron at the southern end (RS 12000). To help organize information about existing conditions within the study area and expected future conditions under each alternative, three major river reaches and several subreaches were identified (Table 1a). Major reaches are based on geologic history, valley topography, geomorphic features, sedimentary materials, and associated plant communities (SH+G 2004a, River Run 2006). Sub-reaches were identified to reflect some of the property ownership, land uses, and infrastructure locations that may be major factors to consider for project alternatives within the river reaches.

River stationing has also been developed along the proposed channel alignment under Alternatives 2, 3, and 5.

Table 1
Upper Truckee River Reaches and Subreaches in the Study Area

Reach	Subreach	General Characteristics	Downstream River Station* (feet)	Upstream River Station* (feet)	Channel Length (feet)	Percent of Total
1	1A	Meadow	160	1,000	840	7.1
1	1B	Meadow	1,000	1,400	400	3.4
1	1C	Meadow	1,400	1,800	400	3.4
1	1D	Meadow	1,800	2,400	600	5.1
1	1E	Meadow	2,400	4,200	1,800	15.2
2	2	Transition	4,200	6,200	2,000	16.9
3	3A	Forest	6,200	7,500	1,300	11.0
3	3B	Forest	7,500	8,600	1,100	9.3
3	3C	Forest	8,600	9,000	400	3.4
3	3D	Forest	9,000	12,000	3,000	25.3
Total					11,840	100.0

* River station is the distance (in feet) up river from arbitrary zero point downstream and east of the U.S. 50 bridge over the Upper Truckee River. River stations are those used in hydraulic models of the project area (SH+G 2004b, 2004c).

Source: Data prepared by EDAW, Inc. and Valley & Mountain Consulting, 2008.

Treatments by Alternative

A comprehensive listing of the river and floodplain conditions and proposed actions, by Alternative, is provided in Table 2 in a layout that allows comparisons at the reach and sub-reach scale. The information in this matrix format can be cross-referenced to the following text and detailed tables for each Alternative and to the exhibits summarizing each Alternative in the body of Chapter 2, "Alternatives".

			Affected Environment/Setting Notes	Alternative # 1 (Future 'baseline')	Alternative # 4
REACH	**Sub Reach**	**River Station(s)**	**Existing Conditions**	**Existing River and 18-Hole Regulation Golf Course/ No Action**	**River Stabilization /Existing 18-Hole Regulation Golf Course**
1 Meadow	**1A**	**160 to 1000**		**No Planned Treatments/Activities**	**No Planned Treatments/Activities**
Valley			Moderate Valley width and Hwy 50 backwater		
Geology			High Lake-stand backwater deposits (older lake sediments)		
Vegetation			Meadows		
Channel			Incised; past straightening	River planform and profile will adjust by natural processes	
Banks/levees			n/a	Bank treatments and repairs by other parties, as needed	Bank treatments and repairs by other parties, as needed
Floodplain/Terrace			Left bank and right bank have small 2-year overbank areas		
			Left and right bank have moderate 5-year overbank areas		
LandUse			No Golf Course; Private Residences within FP on Left/West	No Golf Course; Private Residences within FP on Left/West	No Golf Course; Private Residences within FP on Left/West
				Sawmill Bike Trail Project will have installed new bridge (~RS 200)	Sawmill Bike Trail Project will have installed new bridge (~RS 200)
1 Meadow	**1B**	**1000 to 1400**		**No Planned Treatments/Activities**	
Valley			Broad Valley--Hwy 50 backwater		
Geology			High Lake-stand backwater deposits		
Vegetation			Meadows		
Channel			Incised; past straightening	River planform and profile will adjust by natural processes	River planform and profile will adjust by natural processes
Banks/levees			RB RipRap HWY ~RS 250; LB RipRap ~RS 920	Bank treatments and repairs by other parties, as needed	**Install bio-technical bank treatments ds of sewer line**
Floodplain/Terrace			Left bank has small 2-year overbank area; none on RB		
			Left bank has moderate 5-year overbank area		
			Right bank has small 5-year overbank area		
LandUse			Golf Course west/left side of UTR only, ~150-200 ft buffer	Golf Course west/left side of UTR only, ~150-200 ft buffer	Golf Course west/left side of UTR only, ~150-200 ft buffer
1 Meadow	**1C**	**1400 to 1800**		No Planned Treatments/Activities	
Valley			Broad Valley--Hwy 50 backwater		
Geology			High Lake-stand backwater deposits (older lake sediments)		
Vegetation			Meadows		
Channel			Incised; past straightening	River planform will adjust by natural processes;	Existing river planform and profile will be maintained
			Sewer line crossing at ~1400 has boulder step	Profile control (boulder GC) at sewer line ~1400	**Install Armored Riffle GC over sewer crossing**
					Install Boulder Step GC ~1425 US of sewer crossing
			Historic and restored Angora creek confluence ~RS 1800		**Install Boulder Step GC ~1775 DS of Angora Creek**
Banks/levees			n/a	Spot bank treatments and repairs, if needed	**Install rock armor RB bank treatments 1400-1800**
					Install biotech LB bank treatments, 1400-1800
Floodplain/Terrace			Left bank has small 2-year overbank areas		
			Left bank has moderate 5-year overbank area		
			Right bank has small 5-year overbank area		
LandUse			Golf Course west/left of UTR only, ~150-200 ft buffer	Golf Course west/left of UTR only, ~150-200 ft buffer	Golf Course west/left of UTR only, ~150-200 ft buffer
1 Meadow	**1D**	**1800 to 2400**		No Planned Treatments/Activities	
Valley			Broad Valley--Hwy 50 backwater		
Geology			High Lake-stand backwater deposits (older lake sediments)		
Vegetation			Meadows ds of RS 2100, Landscaping us of RS 2100		
Channel			Incised	River planform will adjust by natural processes;	Existing river planform and profile will be maintained
			Historic and restored Angora creek LB confluence ~RS 1800		
			GC bridge ~ RS 2150		**Install Boulder Step GC ds of bridge ~2100**
			GC surface water diversion ~RS 2300	Profile control (boulder GC) at water diversion ~2300	**Install Boulder Step GC at surface diversion ~2300**
			Inlet to old meander ~RS 2400		
Banks/levees			Gravel berms/evees on LB and RB	Gravel berms/evees on LB and RB	**Remove berms/levees/ recontour and revegetate upper banks (to)**
			RB Rip Rap RS 2100 to 2400	Spot bank treatments and repairs, if needed	**Install rock armor RB bank treatments 1800-2400**
			LB RootWad ~RS 2300		**Install biotech LB bank treatments 1800-2400**
					Remove or integrate existing bank treatment materials

Table 2

			Affected Environment/Setting Notes	Alternative # 1 (Future 'baseline')	Alternative # 4
REACH	**Sub Reach**	**River Station(s)**	**Existing Conditions**	**Existing River and 18-Hole Regulation Golf Course/ No Action**	**River Stabilization /Existing 18-Hole Regulation Golf Course**
Floodplain/Terrace			Left bank has small 2-year overbank area; none on RB Left bank has moderate 5-year overbank area; none on RB		
LandUse			Golf Course on both sides of UTR us of 2000, no buffer	Golf Course on both sides of UTR us of 2000, no buffer	Golf Course on both sides of UTR us of 2000, no buffer
1 Meadow	**1E**	**2400 to 4200**		No Planned Treatments/Activities	
Valley Geology Vegetation			Broad Valley--Hwy 50 backwater High Lake-stand backwater deposits (older lake sediments) Landscaped and Meadows		
Channel			Incised past straightening Unnamed creek RB confluence ~RS 3000 Angora "ditch" (and old meander scar) LB confluence ~RS 4100 GC bridge ~RS 4100	River planform and profile will adjust by natural processes	Existing river planform and profile will be maintained **Install Boulder Step GC ds of unnamed creek (~2850)** **Install Boulder Step GC at ~3500** **Install Boulder Step GC at ~4025**
Banks/levees			Gravel berms/levees on LB and RB LB Root wad ~ RS 3200; RB RipRap ~RS 3700 LB RipRap ~RS 4090	Gravel berms/levees on LB and RB Spot bank treatments and repairs, if needed	**Remove berms/levees/ recontour and revegetate upper banks (to)** **Install rock armor RB bank treatments 2400-2800** **Install rock armor LB bank treatments 2800-3600** **Install rock armor RB bank treatments 3800-4000** **Install rock armor LB bank treatments 4000-4200** **Install biotech LB bank treatments 2400-2800** **Install biotech RB bank treatments 2800-3800** **Install biotech LB bank treatments 3600-4000** **Install biotech RB bank treatments 4000-4200** **Remove or integrate existing bank treatment materials**
Floodplain/Terrace			No 2-year overbank area along either bank (aside from trib mouths) Left bank and right bank have moderate 5-year overbank areas		
LandUse			Golf course on both sides of UTR, with 25 to 75 ft buffer	Golf course on both sides of UTR, with 25 to 75 ft buffer	Golf course on both sides of UTR, with 25 to 75 ft buffer
2 Transition	**2**	**4200 to 6200**		No Planned Treatments/Activities	
Valley Geology Vegetation			Transition from narrow upstream to broad downstream Transition from glacial outwash to "older lake sediments" Mixed meadow and forest vegetation		
Channel			Incised Minor woody debris role in channel GC bridge ~RS 4850	River planform and profile will adjust by natural processes	Existing river planform and profile will be maintained **Install Boulder Step GC at ~4525** **Install Boulder Step GC at ~4775** **Install Boulder Step GC at ~5225** **Install Boulder Step GC at ~5700** **Install Boulder Step GC at ~6100**

Table 2 cont.

			Affected Environment/Setting Notes	Alternative # 1 (Future 'baseline')	Alternative # 4
REACH	**Sub Reach**	**River Station(s)**	**Existing Conditions**	**Existing River and 18-Hole Regulation Golf Course/ No Action**	**River Stabilization /Existing 18-Hole Regulation Golf Course**
Banks/Levees			Gravel berms/levees on LB and RB (? Check stations) RB Log (brush box behind) ~ RS 4800; RB Willow/soil wrap ~RS 5150; RB RipRap ~RS 5700	Gravel berms/levees on LB and RB (? Check stations) Spot bank treatments and repairs, if needed	**Remove berms/levees/ recontour and revegetate upper banks (to)** **Install rock armor LB bank treatments 4200-4700** **Install rock armor RB bank treatments 4200-4900** **Install rock armor LB bank treatments 5400-5700** **Install rock armor LB bank treatments 5900-6200** **Install biotech RB bank treatments 4200-4800** **Install biotech LB bank treatments 4700-5400** **Install biotech LB bank treatments 5700-5900** **Install biotech RB bank treatments 5400-6200** **Remove or integrate existing bank treatment materials**
Floodplain/Terrace			No 2-year overbank area along either bank Left bank and right bank have small 5-year overbank areas		
LandUse			Golf course on left/north bank of UTR at RS 4700 and 5100, with no buffer Golf course on right/south bank of UTR with 0 to 125 ft buffer	Golf course on left/north bank of UTR at 4700 and 5100, with no buffer Golf course on right/south bank of UTR with 0 to 125 ft buffer	Golf course on left/north bank of UTR at 4700 and 5100, with no buffer Golf course on right/south bank of UTR with 0 to 125 ft buffer
3 Forest	**3A**	**6200 to 7500**		No Planned Treatments/Activities	
Valley			Moderate width		
Geology			Glacial outwash and moraine material		
Vegetation			Forest		
Channel			Deeply Incised Low sinuosity Substantial woody debris role in channel	River planform and profile will adjust by natural processes	Existing river planform and profile will be maintained **Install Boulder Step GC at ~6550** **Install Boulder Step GC at ~6950** **Install Boulder Step GC at ~7550**
Banks/Levees			LB Root Wad ~RS 7450	Spot bank treatments and repairs, if needed	**Install rock armor LB bank treatments 6200-6900** **Install rock armor RB bank treatments 6900-7300** **Install rock armor LB bank treatments 6300-7500** **Install biotech RB bank treatments 6200-6900** **Install biotech LB bank treatments 6900-7300** **Install biotech RB bank treatments 7300-7500** **Remove or integrate existing bank treatment materials**
Floodplain/Terrace			No 2-year overbank area along either bank No left bank 5-year overbank area (aside from old meander mouth) Right bank has small 5-year overbank area, only ds of RS 6500	No 2-year overbank area along either bank No left bank 5-year overbank area (aside from old meander mouth) Right bank has small 5-year overbank area, only ds of RS 6500	**Excavate inset floodplain LB 7300-7500**
LandUse			Golf course only on east/right side of UTR with 150 to 200 ft buffer	Golf course only on east/right side of UTR with 150 to 200 ft buffer	Golf course only on east/right side of UTR with 150 to 200 ft buffer

Table 2 cont.

REACH	Sub Reach	River Station(s)	Affected Environment/Setting Notes Existing Conditions	Alternative # 1 (Future 'baseline') Existing River and 18-Hole Regulation Golf Course/ No Action	Alternative # 4 River Stabilization /Existing 18-Hole Regulation Golf Course
3 Forest	**3B**	**7500 to 8600**		No Planned Treatments/Activities	
Valley			Moderate		
Geology			Glacial outwash and moraine material		
Vegetation			Forest		
Channel			Deeply incised; Substantial woody debris role in channel 2 undersized golf course bridges affect velocities/erosion Numerous bank failures/treatments GC bridge ~RS 7575 GC bridge ~RS 8200	River planform and profile will adjust by natural processes	Existing river planform and profile will be maintained **Install Boulder Step GC at ~7800** **Install new, ~100 to 120 ft span bridge between RS 7800 and 8100** **Remove existing bridge ~7575** **Remove existing bridge ~8200** **Install Boulder Step(s) GC 8200-8400**
Banks/Levees			RB smooth log ~RS 7600 LB RipRap RS 7690 RB Brush Box RS 7910 LB&RB RipRap RS 8180 LB RipRap RS 8320	Spot bank treatments and repairs, if needed	**Install rock armor LB bank treatments 7500-7900** **Install rock armor RB bank treatments 7900-8600** **Install rock armor LB bank treatments 8200-8600** **Install biotech RB bank treatments 7500-7900** **Install biotech LB bank treatments 7900-8200** **Remove or integrate existing bank treatment materials**
Floodplain/Terrace			No 2-year overbank area along either bank No 5-year overbank area along either bank Left overbank topography lower than right, with possible flow routes		**Excavate inset floodplain LB and RB 7800-8100**
LandUse			Golf course on both banks of UTR, no buffer on left, 0 to 200 ft on right	Golf course on both banks of UTR, no buffer on left, 0 to 200 ft on right	Golf course on both banks of UTR, no buffer on left, 0 to 200 ft on right
3 Forest	**3C**	**8600 to 9000**		No Planned Treatments/Activities	
Valley			Narrow, confined by moraines and outwash terraces		
Geology			Glacial outwash and moraine material		
Vegetation			Forest		
Channel			Slightly Incised Substantial woody debris role in channel Sewer line crossing at ~RS 8800	River planform and profile will adjust by natural processes Substantial woody debris role in channel Sewer line crossing at ~RS 8800	Existing river planform and profile will be maintained Substantial woody debris role in channel **Install Boulder Step over sewer crossing (~8800)**
Banks/Levees			RB Rootwad RS 8710	Spot bank treatments and repairs, if needed	**Install rock armor RB bank treatments 8600-8900** **Install rock amor LB bank treatments 8600-8900** **Remove or integrate existing bank treatment materials**
Floodplain/Terrace			Overflow channel inlet on west/left bank ~RS 8800 (active 5 to 10 year events) informal trails and stpud access	Overflow channel inlet on west/left bank ~RS 8800 (active 5 to 10 year events) informal trails and stpud access	Overflow channel inlet on west/left bank ~8800 (active 5 to 10 year events) informal trails and stpud access
LandUse			No golf course on either side of UTR	No golf course on either side of UTR	No golf course on either side of UTR
3 Forest	**3D**	**9000 to 12000**		No Planned Treatments/Activities	**No Planned Treatments/Activities**
Valley			Narrow, confined by moraines and outwash terraces		River planform and profile will adjust by natural processes
Geology			Glacial outwash and moraine material		
Vegetation			Forest (with pocket willow sedge meadows)		
Channel			Slighltly Incised Substantial woody debris role in channel	Slighltly Incised Substantial woody debris role in channel	Slighltly Incised Substantial woody debris role in channel
Banks/Levees			LB Rootwad RS 9780	Spot bank treatments and repairs, if needed	spot bank treatments and repairs, if needed
Floodplain/Terrace			Overflow along east/right bank at approximately the 1.5-year flow 11.48 acre spring/seep within uplands west of channel ~RS 11500 informal trails and stpud access west of river	Overflow along east/right bank at approximately the 1.5-year flow 11.48 acre spring/seep within uplands west of channel ~RS 11500 informal trails and stpud access west of river	Overflow along east/right bank at approximately the 1.5-year flow 11.48 acre spring/seep within uplands west of channel ~RS 11500 informal trails and stpud access west of river

Table 2 cont.

REACH	Sub Reach	River Station(s)	Alternative # 2 River Ecosystem Restoration / Reconfigured 18-Hole Regulation Golf Course	Alternative # 3 River Ecosystem Restoration /Reduced Play Golf Coursse	Alternative # 5 River and Meadow Ecosystem Restoration / Decommissioned Golf Course
1 Meadow	**1A**	**160 to 1000**	**No Planned Treatments/Activities**	**No Planned Treatments/Activities**	**No Planned Treatments/Activities**
Valley					
Geology					
Vegetation					
Channel					
Banks/levees			Bank treatments and repairs by other parties, as needed	Bank treatments and repairs by other parties, as needed	Bank treatments and repairs by other parties, as needed
Floodplain/Terrace					
LandUse			No Golf Course; Private Residences within FP on Left/West	No Golf Course; Private Residences within FP on Left/West	No Golf Course; Private Residences within FP on Left/West
			Sawmill Bike Trail Project will have installed new bridge (~RS 200)	Sawmill Bike Trail Project will have installed new bridge (~RS 200)	Sawmill Bike Trail Project will have installed new bridge (~RS 200)
1 Meadow	**1B**	**1000 to 1400**			
Valley					
Geology					
Vegetation					
Channel			River planform and profile will adjust by natural processes	River planform and profile will adjust by natural processes	River planform and profile will adjust by natural processes
Banks/levees			**Install bio-technical bank treatments ds of sewer line**	**Install bio-technical bank treatments ds of sewer line**	**Install bio-technical bank treatments ds of sewer line**
Floodplain/Terrace					
LandUse			No Golf Course on either side of UTR	No golf course on either side of UTR	No golf course on either side of UTR
1 Meadow	**1C**	**1400 to 1800**			
Valley					
Geology					
Vegetation					
Channel			Existing river planform will be maintained; profile raised	Existing river planform will be maintained; profile raised	Existing river planform will be maintained; profile raised
			Install Armored Riffle GC over sewer crossing	**Install Armored Riffle GC over sewer crossing**	**Install Armored Riffle GC over sewer crossing**
			Install Boulder Step GC series from 1400 to 1600	Install Boulder Step GC series from 1400 to 1600	Install Boulder Step GC series from 1400 to 1600
			Install Boulder Step GC ~1775 DS of Angora Creek	Install Boulder Step GC ~1775 DS of Angora Creek	Install Boulder Step GC ~1775 DS of Angora Creek
			Install Armored Riffle GC/transition 1600-1700	**Install Armored Riffle GC/transition 1600-1700**	**Install Armored Riffle GC/transition 1600-1700**
Banks/levees			**Install bio-tech RB bank treatments 1400-1800**	**Install bio-tech RB bank treatments 1400-1800**	**Install bio-tech RB bank treatments 1400-1800**
Floodplain/Terrace					
LandUse			No Golf Course on either side of UTR	No golf course on either side of UTR	No golf course on either side of UTR
1 Meadow	**1D**	**1800 to 2400**			
Valley					
Geology					
Vegetation					
Channel			New planform and raised profile will adjust by natural processes	New planform and raised profile will adjust by natural processes	New planform and raised profile will adjust by natural processes
			Re-contour, re-vegetate, and re-connect LB meander, ~1800-2300	Re-contour, re-vegetate, and re-connect LB meander, ~1800-2300	Re-contour, re-vegetate, and re-connect LB meander, ~1800-2300
			Remove bridge at ~2150 on UTR	Remove bridge at ~2150 on UTR	Remove bridge at ~2150 on UTR
			Install Boulder Step GC at surface diversion ~2300	Install Boulder Step GC at surface diversion ~2300	Remove/decomission surface diversion ~2300
			Install Armored Riffle GC/transition 2300-2400	**Install Armored Riffle GC/transition 2300-2400**	**Install Armored Riffle GC/transition 2300-2400**
			Install Armored Riffle GC/transition 2400-2600	**Install Armored Riffle GC/transition 2400-2600**	**Install Armored Riffle GC/transition 2400-2600**
Banks/levees			**Remove berms/levees/ recontour and revegetate upper banks (to)**	**Remove berms/levees/ recontour and revegetate upper banks (to)**	**Remove berms/levees/ recontour and revegetate upper banks (to)**
			Install bio-tech RB bank treatments 1800 -2400	**Install bio-tech RB bank treatments 1800 -2400**	**Install bio-tech RB bank treatments 1800 -2400**
			Remove or integrate existing bank treatment materials	**Remove or integrate existing bank treatment materials**	**Remove or integrate existing bank treatment materials**

Table 2 cont.

			Alternative # 2	Alternative # 3	Alternative # 5
REACH	**Sub Reach**	**River Station(s)**	**River Ecosystem Restoration / Reconfigured 18-Hole Regulation Golf Course**	**River Ecosystem Restoration /Reduced Play Golf Coursse**	**River and Meadow Ecosystem Restoration / Decommissioned Golf Course**
Floodplain/Terrace			**Partially backfill existing channel(s) 1800-2300**	Partially backfill existing channel(s) 1800-2300	Partially backfill existing channel(s) 1800-2300
			Remove bridges on Angora Creek	Remove bridges on Angora Creek	Remove bridges on Angora Creek
			Remove all GC infrastructure north of UTR	Remove all GC infrastructure north of UTR	Remove all GC infrastructure north of UTR
			Remove areas of GC infrastructure south of UTR	Remove____ area/locations of GC infrastructure south of UTR	Remove GC infrastructure except Clubhouse/Maintenance south of UTR
			Recontour floodplain no longer in GC	Recontour floodplain no longer in GC	Recontour floodplain no longer in GC
			Revegetate floodplain no longer in GC	Revegetate floodplain no longer in GC	Revegetate floodplain no longer in GC
LandUse			No golf course on north side of UTR	No golf course on north side of UTR	No golf course on either side of UTR
			Golf Course on south side of UTR us of 2000 with 175- 250 ft buffer	Golf Course on south side of UTR us of 2000 with 175- 250 ft buffer	
1 Meadow	**1E**	**2400 to 4200**			
Valley					
Geology					
Vegetation					
Channel			New planform and raised profile will adjust by natural processes	New planform and raised profile will adjust by natural processes	New planform and raised profile will adjust by natural processes
			Construct new RB meander 2400 to 3000	Construct new RB meander 2400 to 3000	Construct new RB meander 2400 to 3000
			Install Armored Riffle GC/transition 2850-3000	**Install Armored Riffle GC/transition 2850-3000**	**Install Armored Riffle GC/transition 2850-3000**
			Reconfigure creek confluence ~3000	Reconfigure creek confluence ~3000	Reconfigure creek confluence ~3000
			Install Armored Riffle GC/transition 3000-3250	**Install Armored Riffle GC/transition 3000-3250**	**Install Armored Riffle GC/transition 3000-3250**
			Construct new LB meander 3200 to 4100	Construct new LB meander 3200 to 4100	Construct new LB meander 3200 to 4100
			Remove bridge at ~4100 on UTR	Remove bridge at ~4100 on UTR	Remove bridge at ~4100 on UTR
Banks/levees			**Remove berms/levees/ recontour and revegetate upper banks of active channel**		
			Remove or integrate existing bank treatment materials	**Remove or integrate existing bank treatment materials**	**Remove or integrate existing bank treatment materials**
Floodplain/Terrace			**Partially backfill existing channel 2400-2900**	Partially backfill existing channel 2400-2900	Partially backfill existing channel 2400-2900
			Partially backfill existing channel 3200-4200	Partially backfill existing channel 3200-4200	Partially backfill existing channel 3200-4200
			Remove all GC infrastructure north of UTR	Remove all GC infrastructure north of UTR	Remove all GC infrastructure north of UTR
			Remove areas of GC infrastructure south of UTR	Remove ___area/locations of GC infrastructure south of UTR	Remove all GC infrastructure south of UTR
			Recontour floodplain no longer in GC	Recontour floodplain no longer in GC	Recontour floodplain no longer in GC
			Revegetate floodplain no longer in GC	Revegetate floodplain no longer in GC	Revegetate floodplain and meadows no longer in GC
			Convert piped portions of unnamed creek to open channel	Convert piped portions of unnamed creek to open channel	Convert piped portions of unnamed creek to open channel
			Convert piped portions of unnamed creek to open channel	Convert piped portions of unnamed creek to open channel	Convert piped portions of unnamed creek to open channel
					Remove GC bridges on unnamed creek
			Install recreation access trail/convert GC paths south of UTR	**Install recreation access trail/convert GC paths south of UTR**	
LandUse			No golf course on north side of UTR	No golf course on north side of UTR	No golf course on either side of UTR
			Golf Course on south side of UTR with 200-400 ft buffer	Golf Course on south side of UTR with 200-400 ft buffer	
2 Transition	**2**	**4200 to 6200**			
Valley					
Geology					
Vegetation					
Channel			New planform and raised profile will adjust by natural processes	New planform and raised profile will adjust by natural processes	New planform and raised profile will adjust by natural processes
			Re-contour, re-vegetate, and re-connect LB meander, ~4200-4600	**Re-contour, re-vegetate, and re-connect LB meander, ~4200-4600**	**Re-contour, re-vegetate, and re-connect LB meander, ~4200-4600**
			Install Armored Riffle GC/transition 4525-4700	**Install Armored Riffle GC/transition 4525-4700**	**Install Armored Riffle GC/transition 4525-4700**
			Remove GC bridge ~4850	**Remove GC bridge ~4850**	**Remove GC bridge ~4850**
			Install Armored Riffle GC/transition 5700-5950	**Install Armored Riffle GC/transition 5700-5950**	**Install Armored Riffle GC/transition 5700-5950**
			Re-contour, re-vegetate, and re-connect RB meander, ~5900-6200	**Re-contour, re-vegetate, and re-connect RB meander, ~5900-6200**	**Re-contour, re-vegetate, and re-connect RB meander, ~5900-6200**

Table 2 cont.

			Alternative # 2	Alternative # 3	Alternative # 5
REACH	Sub Reach	River Station(s)	River Ecosystem Restoration / Reconfigured 18-Hole Regulation Golf Course	River Ecosystem Restoration /Reduced Play Golf Coursse	River and Meadow Ecosystem Restoration / Decommissioned Golf Course
Banks/Levees			**Remove berms/levees/ recontour and revegetate upper banks (to)**	**Remove berms/levees/ recontour and revegetate upper banks (to)**	**Remove berms/levees/ recontour and revegetate upper banks (to)**
			Install biotech RB bank treatments 4200-5500	**Install biotech RB bank treatments 4200-5500**	**Install biotech RB bank treatments 4200-5500**
			Install biotech LB bank treatments 4800-4900	**Install biotech LB bank treatments 4800-4900**	**Install biotech LB bank treatments 4800-4900**
			Install biotech RB bank treatments 4800-4900	**Install biotech RB bank treatments 4800-4900**	**Install biotech RB bank treatments 4800-4900**
			Install biotech LB bank treatments 5400-5700	**Install biotech LB bank treatments 5400-5700**	**Install biotech LB bank treatments 5400-5700**
			Remove or integrate existing bank treatment materials	**Remove or integrate existing bank treatment materials**	**Remove or integrate existing bank treatment materials**
Floodplain/Terrace			**Partially backfill existing channel 4200-4550**	**Partially backfill existing channel 4200-4550**	**Partially backfill existing channel 4200-4550**
			Partially backfill existing channel 5850-6200	**Partially backfill existing channel 5850-6200**	**Partially backfill existing channel 5850-6200**
			Remove all GC infrastructure north side;	**Remove all GC infrastructure north side;**	**Remove all GC infrastructure north of UTR**
			Remove potions of GC infrastructure south of river	**Remove ___area/locations of GC infrastructure south of UTR**	**Remove all GC infrastructure south of UTR**
			Recontour floodplain and former GC pond	**Recontour floodplain and former GC pond**	**Recontour floodplain and former GC ponds no longer in GC**
			Revegetate former manicured landscape	**Revegetate former manicured landscape**	**Revegetate floodplain and meadows no longer in GC**
			Install recreation access trail/convert GC paths south of UTR	**Install recreation access trail/convert GC paths south of UTR**	
LandUse			No golf course on north side of UTR	No golf course on north side of UTR	No golf course on either side of UTR
			Golf Course on south side of UTR with ~200 ft buffer	Golf Course on south side of UTR with ~200 ft buffer	
3 Forest	**3A**	**6200 to 7500**			
Valley					
Geology					
Vegetation					
Channel			New planform and raised profile will adjust by natural processes	New planform and raised profile will adjust by natural processes	New planform and raised profile will adjust by natural processes
			Re-contour, re-vegetate, and re-connect RB meander, ~6200-6500	Re-contour, re-vegetate, and re-connect RB meander, ~6200-6500	Re-contour, re-vegetate, and re-connect RB meander, ~6200-6500
			Install Armored Riffle GC/transition 6500-6600	**Install Armored Riffle GC/transition 6500-6600**	**Install Armored Riffle GC/transition 6500-6600**
			Install new long, single span bridge (between RS 6600-6900)		
			Install Armored Riffle GC/transition 7300-7400	**Install Armored Riffle GC/transition 7300-7400**	**Install Armored Riffle GC/transition 7300-7400**
			Re-contour, re-vegetate, and re-connect LB meander, ~7300 -7400	Re-contour, re-vegetate, and re-connect LB meander, ~7300 -7400	Re-contour, re-vegetate, and re-connect LB meander, ~7300 -7400
			Construct new LB meander connection 7400-7500	Construct new LB meander connection 7400-7500	Construct new LB meander connection 7400-7500
Banks/Levees			**Install biotech LB bank treatments 6600-7300**	**Install biotech LB bank treatments 6600-7300**	**Install biotech LB bank treatments 6600-7300**
			Install rock-toe/launchable LB and RB bank treatments at new bridge		
			Remove or integrate existing bank treatment materials	**Remove or integrate existing bank treatment materials**	**Remove or integrate existing bank treatment materials**
Floodplain/Terrace			**Excavate inset floodplain RB ~ 6600-7300**	**Excavate inset floodplain RB ~ 6600-7300**	**Excavate inset floodplain RB ~ 6600-7300**
			Partially backfill existing channel 6200-6525	**Partially backfill existing channel 6200-6525**	**Partially backfill existing channel 6200-6525**
			Partially backfill existing channel(s) 7400-7500	**Partially backfill existing channel(s) 7400-7500**	**Partially backfill existing channel(s) 7400-7500**
			Construct new GC bridge approaches		
			Install new GC infrastructure in ~125 ft wide upland corridor		
			Install recreation access trail/convert STPUD/trails west of UTR	**Install recreation access trail/convert STPUD/trails west of UTR**	
LandUse			Golf course on both sides of UTR with 0 to 500 ft buffer	Golf course only on west side of UTR, with 500 to 800 ft buffer	No golf course on either side of UTR

Table 2 cont.

REACH	Sub Reach	River Station(s)	Alternative # 2 River Ecosystem Restoration / Reconfigured 18-Hole Regulation Golf Course	Alternative # 3 River Ecosystem Restoration /Reduced Play Golf Coursse	Alternative # 5 River and Meadow Ecosystem Restoration / Decommissioned Golf Course
3 Forest	**3B**	**7500 to 8600**			
Valley					
Geology					
Vegetation					
Channel			New planform and raised profile will adjust by natural processes	New planform and raised profile will adjust by natural processes	New planform and raised profile will adjust by natural processes
			Construct new LB meander connection 7500-7600	**Construct new LB meander connection 7500-7600**	**Construct new LB meander connection 7500-7600**
			Install Armored Riffle GC/transition 7600-7800	**Install Armored Riffle GC/transition 7600-7800**	**Install Armored Riffle GC/transition 7600-7800**
			Remove existing bridge ~7575	**Remove existing bridge ~7575**	**Remove existing bridge ~7575**
			Remove existing bridge ~8200	**Remove existing bridge ~8200**	**Remove existing bridge ~8200**
			Install Boulder Step GC ~8300	**Install Boulder Step GC ~8300**	**Install Boulder Step GC ~8300**
			Install Boulder Step GC ~8600	**Install Boulder Step GC ~8600**	**Install Boulder Step GC ~8600**
Banks/Levees			**Install biotech RB bank treatments 7700 -8300**	**Install biotech RB bank treatments 7700 -8300**	**Install biotech RB bank treatments 7700 -8300**
			Install biotech LB bank treatments 7700-8300	**Install biotech LB bank treatments 7700-8300**	**Install biotech LB bank treatments 7700-8300**
			Remove or integrate existing bank treatment materials	**Remove or integrate existing bank treatment materials**	**Remove or integrate existing bank treatment materials**
Floodplain/Terrace			**Excavate inset floodplain RB 7700-8300**	**Excavate inset floodplain RB 7700-8300**	**Excavate inset floodplain RB 7700-8300**
			Excavate inset floodplain LB 7700-8300	**Excavate inset floodplain LB 7700-8300**	**Excavate inset floodplain LB 7700-8300**
			Partially backfill existing channel 7500-7700	**Partially backfill existing channel 7500-7700**	**Partially backfill existing channel 7500-7700**
			Remove all GC infrastructure from former west/east banks	**Remove all GC infrastructure from former west/east banks**	**Remove all GC infrastructure from former west/east banks**
			Recontour floodplain no longer in GC	**Recontour floodplain no longer in GC**	**Recontour floodplain no longer in GC**
			Revegetate floodplain no longer in GC	**Revegetate floodplain no longer in GC**	**Revegetate floodplain no longer in GC**
LandUse			Golf course on both banks, with 250 ft buffers	Golf course only on west side of UTR, with 200 to 500 ft buffer	No golf course on either side of UTR
3 Forest	**3C**	**8600 to 9000**			
Valley					
Geology					
Vegetation					
Channel			Existing planform and raised profile will adjust by natural processes	Existing planform and raised profile will adjust by natural processes	Existing planform and raised profile will adjust by natural processes
			Substantial woody debris role in channel	Substantial woody debris role in channel	Substantial woody debris role in channel
			Install +.5 ft Boulder Step over sewer crossing (~8800)	**Install +.5 ft Boulder Step over sewer crossing (~8800)**	**Install +.5 ft Boulder Step over sewer crossing (~8800)**
Banks/Levees			**Install biotech RB bank treatments 8600-8900**		
			Install biotech LB bank treatments 8600-8900		
			Remove or integrate existing bank treatment materials	**Remove or integrate existing bank treatment materials**	**Remove or integrate existing bank treatment materials**
Floodplain/Terrace					
			Overflow channel inlet on west/left bank ~8800 (active ___ year events)	Overflow channel inlet on west/left bank ~8800 (active ___ year events)	Overflow channel inlet on west/left bank ~8800 (active ___ year events)
			Improve/modify existing trail east of UTR	informal trails and stpud access	informal trails and stpud access
LandUse			Golf Course on left (west) side, with 300-450 ft buffer	No golf course on either side of UTR	No golf course on either side of UTR
3 Forest	**3D**	**9000 to 12000**	**No Planned Treatments/Activities**	**No Planned Treatments/Activities**	**No Planned Treatments/Activities**
Valley			**River planform and profile will adjust by natural processes**	**River planform and profile will adjust by natural processes**	**River planform and profile will adjust by natural processes**
Geology					
Vegetation					
Channel			Slighltly Incised	Slighltly Incised	Slighltly Incised
			Substantial woody debris role in channel	Substantial woody debris role in channel	Substantial woody debris role in channel
Banks/Levees			spot bank treatments and repairs, if needed		
Floodplain/Terrace			***Any HECRas info; or CSP stage-Q relations infO?***		
			Overflow along east/right bank at approximately the 1.5-year flow	Overflow along east/right bank at approximately the 1.5-year flow	Overflow along east/right bank at approximately the 1.5-year flow
			Integrate 11.48 acre spring/seep in uplands west of channel ~RS 11500 into naturalized GC	11.48 acre spring/seep within uplands west of channel ~RS 11500	11.48 acre spring/seep within uplands west of channel ~RS 11500
			informal trails and stpud access west of river	informal trails and stpud access west of river	informal trails and stpud access west of river
LandUse			Golf Course on left (west) side, with 300-450 ft buffer	No golf course on either side of UTR	No golf course on either side of UTR
			Integrate ~3.0 acres existing soft coverage into GC; Integrate ~0.6 acres into naturalized GC		

Table 2 cont.

Alternative 1: No Project/No Action: Existing River and 18-Hole Regulation Golf Course

Under Alternative 1, no engineering features or restoration would be implemented in the study area. The channel and riparian corridor of the Upper Truckee River, the unnamed creek and Angora Creek flowing through the golf course would remain similar to present conditions, and all golf cart bridges over the creek and river would remain in place. The proposed Upper Truckee River channel would be the existing (unmodified) channel in all subreaches (Table 3).

Table 3
Proposed River Channel Types for Alternative 1

Subreach	Length of Proposed Channel Type (feet)				Total by Subreach
	Existing (Unmodified)	Modified Existing	Reconnected Historic	Constructed	
1A	840	0	0	0	840
1B	400	0	0	0	400
1C	400	0	0	0	400
1D	600	0	0	0	600
1E	1,800	0	0	0	1,800
2	2,000	0	0	0	2,000
3A	1,300	0	0	0	1,300
3B	1,100	0	0	0	1,100
3C	400	0	0	0	400
3D	3,000	0	0	0	3,000
Length totals	11,840	0	0	0	11,840
Percent totals	100.0%	0.0%	0.0%	0.0%	100.0%

*Calculations are estimates based on conceptual design and would be modified, as appropriate, during final design.
Source: Data prepared by EDAW, Inc. and Valley & Mountain Consulting, 2008.

Under Alternative 1, existing streambank protection features (Table 4) would not be modified. However, repairs to streambanks and/or streambank treatments would continue on an as-needed basis. Spot treatments and repairs would occur primarily in response to major flood events and would be limited to locations with vulnerable public or golf infrastructure, or private property.

Table 4
Existing Bank Stabilization Treatments

Subreach	Length of Existing Bank Treatments (feet)	Percent of Bank Length* Treated	Length of Intact Treatments (feet)	Percent of Treatments Intact
1A	151	9.0	34	22.7
1B	0	0.0	NA	NA
1C	0	0.0	NA	NA
1D	244	20.3	174	71.3
1E	594	16.5	32	5.4
2	268	6.7	33	12.3
3A	0	0.0	NA	NA
3B	576	26.2	285	49.5
3C	33	4.1	33	100
3D	33	0.6	33	100
Total/Average Percent	1,900	7.9%	625	32.9%

Notes: As of 2008 field survey by State Parks staff (mapped/measured with GPS).
NA = not applicable.
* Bank length (24,000 feet) is double the channel length, to include both left and right banks.
Source: Data prepared by EDAW, Inc. and Valley & Mountain Consulting, 2008.

Alternative 2: River Ecosystem Restoration with Reconfigured 18-hole Regulation Golf Course

Under Alternative 2, the new channel would incorporate sections of the existing channel, reactivate historic meanders, and construct new sections of channel. Approximately 4,240 feet of the existing channel would be used without modification, 5,000 feet of the existing channel would be modified, 2,490 feet of historic channel remnants would be reconnected, and 1,700 feet of new channel would be constructed (Table 5). The numeric estimates of length, area, and volume in this section are based on conceptual design and would be modified during final design.

Table 5
Proposed River Channel Types for Alternative 2

Subreach	Length of Proposed Channel Type (feet)				Total by Subreach
	Existing (Unmodified)	Modified Existing	Reconnected Historic	Constructed	
1A	840	0	0	0	840
1B	400	0	0	0	400
1C	0	400	0	0	400
1D	0	0	755	0	755
1E	0	900	150	1,085	2,135
2	0	1,600	650	0	2,250
3A	0	800	735	500	2,035
3B	0	900	200	115	1,215
3C	0	400	0	0	400
3D	3,000	0	0	0	3,000
Length totals	4,240	5,000	2,490	1,700	13,430
Percent totals	31.6%	37.2%	18.5%	12.7%	100.0%

*Calculations are estimates based on conceptual design and would be modified, as appropriate, during final design.
Source: Data prepared by EDAW, Inc. and Valley & Mountain Consulting, 2008.

Proposed grade controls would provide stabilization at the connections between the most downstream and upstream treated subreaches of the main treated channel section (Subreaches 1C through 3C), the existing unmodified channel (e.g., Subreach 1B and Subreach 3D), and at infrastructure crossings (Table 6). A combination of about three boulder steps and integrated cobble riffles that form Anchored High Gradient Riffles would be installed at the upstream and downstream extents of the project (sub reaches 1C and 3C).

Table 6
Alternative 2: Proposed Boulder Step Streambed Stabilization

Location		Proposed Boulder Steps: Alternative 2		
Subreach	Subreach Proposed Channel Length (feet)	Location Existing River Station(s) (feet)	Number of Boulder Steps	Bed Elevation Increase (feet)
1A	840	NA	0	NA
1B	400	NA	0	NA
1C	400	1,400 1,600 1,750	3	0.3 0.6 1.3
1D	755	2,300	1	1.1
1E	2,135	NA	0	NA
2	2,250	NA	0	NA
3A	2,035	NA	0	NA
3B	1,215	8,300	1	0.8 to 1.0
3C	400	8,600 8,800	2	0.6 0.3
3D	3,000	NA	0	NA
Total	13,430		7	

*Calculations are estimates based on conceptual design and would be modified, as appropriate, during final design.
Note: NA = not applicable.
Source: Data prepared by EDAW, Inc. and Valley & Mountain Consulting, 2008.

Alternative 2 involves modifying and protecting selective stream banks of the proposed channel using primarily biotechnical bank treatments designed and implemented in conjunction with the overall channel treatments to modify existing channel sections, reconnect historic channel sections, and/or construct new channel sections (Table 7). Biotechnical bank treatments would be installed on a total of approximately 2,700 feet of existing banks (approximately 1,350 feet of channel) along portions of the 9,240 feet of existing channel that would be retained as active channel. The primary type of bank treatment along the entire 1,700 feet of proposed constructed channel sections would be a combination of transplanting salvaged materials and the addition of biotechnical materials. Assuming that alternating sides of the reconnected meanders must be disturbed for access to the channel or to be reshaped, it is possible that bank vegetation protection in some portions of abandoned meanders could be around 50% if access could occur in the channel and its dimensions and materials are appropriate. The resulting length of disturbed banks along the reconnected meanders may vary from

approximately 1,250 feet up to 2,490 feet and would be treated with vegetation transplants and biotechnical measures.

Table 7
Alternatives 2, 3, and 5 Proposed Bank Stabilization Treatments

Subreach	Rock Armor Bank Treatments (feet)	Biotechnical Bank Treatments (feet)	Total Treatment Length (feet)	Percent of Bank Length * Treated
1A	0	0	0	0.0
1B	0	100	100	12.5
1C	0	350	350	50.0
1D	0	0	0	0.0
1E	0	0	0	0.0
2	0	900	900	20.0
3A	100	600	700	17.2
3B	0	250	250	10.3
3C	0	200	200	50.0
3D	0	0	0	0.0
Total	100	2,400	2,500	9.3

* Bank length is double the proposed (Alternative 2) channel length, to include both left and right banks.
Source: Data prepared by EDAW, Inc. and Valley & Mountain Consulting, 2008.

Transitions between existing, reconnected, or constructed channel segments that would be in the proposed active channel would generally be at riffle crossovers. Specific transition treatments that combine both streambed and stream bank measures would be installed to provide stability and to smooth the hydraulic connection between segment types (Table 8).

Table 8
Alternatives 2, 3, and 5 Proposed Transition Treatments

Subreach	Number of Transitions	Length of Transition Treatment* (feet)	Percent of Bank Length ** Treated
1A	0	0	0.0%
1B	0	0	0.0%
1C	1	400	50.0%
1D	1	400	26.5%
1E	3	1,200	28.1%
2	2	800	17.8%
3A	1	400	9.8%
3B	1	400	16.5%
3C	1	400	50.0%
3D	0	0	0.0%
Total	10	4,000	14.9%

*Calculations are estimates based on conceptual design and would be modified, as appropriate, during final design.
* Assumes approximately 100 feet upstream and downstream extent per transition, and both banks treated.
** Bank length is double the proposed (Alternative 2) channel length, to include both left and right banks.
Source: Data prepared by EDAW, Inc. and Valley & Mountain Consulting, 2008.

The active floodplain would be enlarged by excavating inset floodplain from the existing terrace banks in a couple of subreaches (Table 9). In the downstream portion of the study area (i.e., Subreaches 1D/1E), approximately 2 feet of excavation would meet design elevations in the reconnected meanders. Further upstream (i.e., Subreaches 3A/3B), the reconnected meanders may require about 3 feet of excavation to meet design grade. In all cases, the upper 1 foot of material would generally include salvaged soil and vegetation to be reused on bank treatments. Inset floodplain would be excavated in Subreach 3A in the vicinity of the new bridge (along the right bank between RS 6600 and RS 7300). The other area of inset floodplain would be in Subreach 3B, which has experienced hydraulic confinement from the golf course bridges (between RS 7700 and RS 8300).

Table 9
Alternative 2 Proposed Inset Floodplain Excavation

Location		Proposed Inset Floodplain: Alternative 2		
Subreach	**River Station(s) (feet)**	**Length (feet)**	**Typical Width (feet)**	**Total Area (acres)**
1A	NA	0	NA	0
1B	NA	0	NA	0
1C	NA	0	NA	0
1D	NA	0	NA	0
1E	NA	0	NA	0
2	NA	0	NA	0
3A	6,600–7,300	700	50	0.8
3B	7,700–8,300	600	60*	0.9
3C	NA	0	NA	0
3D	NA	0	NA	0
Total		1,300		1.7

Note: NA = not applicable.
*Calculations are estimates based on conceptual design and would be modified, as appropriate, during final design.
* Inset floodplain is proposed on both sides of the channel in Subreach 3B.
Source: Data prepared by EDAW, Inc. and Valley & Mountain Consulting, 2008.

The approximately 2,600 feet of the existing channel to be abandoned would be converted into about 4.5 acres of functional floodplain by complete or partial backfilling (Table 10).

Table 8
Alternative 2 Proposed Backfilled Channels

Location		Proposed Backfilled Channel Floodplain: Alternative 2			
Subreach	Length (feet)	Typical Channel Width (feet)	Total Area (acres)	Typical Channel Depth (feet)*	Approximate Fill Volume (cubic yards)
1A	0	NA	0.0	NA	NA
1B	0	NA	0.0	NA	NA
1C	0	NA	0.0	NA	NA
1D	600	75	1.0	6	10,000
1E	900	75	1.5	6	15,000
2	400	75	0.7	8	8,889
3A	500	75	0.9	8	11,111
3B	200	75	0.3	10	5,556
3C	0	NA	0.0	NA	NA
3D	0		0.0		
Total	2,600	75	4.5	8	50,556

Note: NA = not applicable.
* Assumes complete backfill of entire abandoned channels: not adjusted up for compaction needs or down for partial fill areas, therefore, this could fluctuate plus or minus 25%.
Calculations are estimates based on conceptual design and would be modified, as appropriate, during final design.
Source: Data prepared by EDAW, Inc. and Valley & Mountain Consulting, 2008.

Reconfigured Unnamed Creek

Along the unnamed creek, golf course turf would be removed within an enlarged buffer. As feasible, the low flow channel of the creek would be modified by excavation and local grading to add more channel length and increase the potential for small active floodplain areas within the buffer. The mouth of the unnamed creek would be modified to adjust its orientation relative to the Upper Truckee River alignment and streambed elevation. Some of the existing creek would be relocated, replaced with a new constructed channel that curves to meet the new river position and a series of step grade control features and biotechnical bank stabilization treatments would be installed. The final unnamed creek design channel length, width and profile would be determined by iterative hydraulic and geomorphic analysis of the selected alternative.

Alternative 3: River Ecosystem Restoration with Reduced-Play Golf Course

The treatment for the Upper Truckee River in Alternative 3 is the same as the treatment in Alternative 2. Some differences exist between these two alternatives, primarily in that Alternative 3 does not include any bridges over the river. The proposed river alignment under Alternative 3 would be the same as that for Alternative 2 (Table 5). The proposed streambed treatments and profile conditions under Alternative 3 would be the same as those for Alternative 2 (Table 6). The proposed bank treatments under Alternative 3 would be the same as those for Alternative 2 (Table 7). The proposed excavation of inset floodplain, and the backfilled channel treatments under Alternative 3 would be the same as under Alternative 2 (Tables 9, 10). Enhancements to the unnamed creek and reconfiguration of the creek mouth under Alternative 3 would be the same as under Alternative 2.

Alternative 4: River Stabilization with Existing 18-Hole Regulation Golf Course

The Alternative 4 design features river stabilization measures to protect the streambed and stream banks from erosion, keeping the river in its present location and elevation, and preventing natural or accelerated channel migration. The two bridges at golf course holes 6 and 7 would be replaced with a single, longer span bridge between the two existing bridges. Under Alternative 4, approximately4,440 feet of the existing channel would not be modified and about 7,400 feet of the channel would be modified.

Although Alternative 4 would not change the current elevation of the channel bed, it would directly modify the future streambed elevation of the Upper Truckee River through prevention of continued bed erosion and upstream knickpoint migration. Protective engineered streambed stabilization would be installed at approximately 18 sites, limiting the potential for future erosion(Table 11). Armored riffles, consisting of cobble and gravel could be placed in the existing channel between boulder steps.

Table 11
Alternative 4 - Proposed Boulder Step Streambed Stabilization

Location		Proposed Boulder Steps: Alternative 4		
Subreach	Subreach Channel Length (feet)	Location Existing River Station (feet)	Number of Boulder Steps	Bed Elevation Increase (feet)
1A	840	None	0	NA
1B	400	None	0	NA
1C	400	1,400 1,600 1,750	2-3	0.3 0.6 1.3
1D	600	2,100 2,300	2	1.1
1E	1,800	2,850 3,500 4,025	3	0.5 to 1.0
2	2,000	4,525 4,775 5,225 5,700 6,100	5	0.5 to 1.0
3A	1,300	6,550 6,950 7,550	3	0.5 to 1.0
3B	1,100	7,800 8,200–8,400	2–3	0.8 to 1.0
3C	400	8,600 8,800	2	0.6 0.3
3D	3,000	NA	0	NA
Total	11,840		18-21	

Note: NA = not applicable.
Source: Data prepared by EDAW, Inc. and Valley & Mountain Consulting, 2008.

Alternative 4 would modify and protect existing stream banks by installing bank stabilization treatments throughout the treated reach between RS 13+00 and RS 89+00 (Table 12). Treatment types alternate along each side of the channel, with rock- armor treatments generally on outer cut banks and biotechnical types on the inside of bends or lower bank height sections.

Table 12 Alternative 4 – Proposed Bank Stabilization Treatments				
Subreach	**Rock Armor Bank Treatments (feet)**	**Biotechnical Bank Treatments (feet)**	**Total Treatment Length (feet)**	**Percent of Bank Length* Treated**
1A	0	0	0	0.0
1B	0	100	100	12.5
1C	400	400	800	100.0
1D	600	600	1,200	100.0
1E	1,600	2,000	3,600	100.0
2	1,800	2,100	4,000	100.0
3A	1,300	1,300	2,600	100.0
3B	1,500	700	2,200	100.0
3C	300	300	600	75.0
3D	0	0	0	0.0
Total	7,500	7,400	15,100	63.8

* Bank length is double the channel length, to include both left and right banks.
Source: Data prepared by EDAW, Inc. and Valley & Mountain Consulting, 2008.

Under Alternative 4, the active floodplain would not be directly modified, except for a 500-foot long section of inset floodplain to be excavated in the vicinity of the replacement bridge between holes 6 and 7. The inset floodplain would create about 0.4 acres of active floodplain.

The mouth of the unnamed creek would be not be modified under Alternative 4. No changes to Angora Creek would occur under Alternative 4.

Alternative 5: River Ecosystem Restoration/ Decommissioned Golf Course

The treatment for the Upper Truckee River in Alternative 5 is the same as the treatments in Alternatives 2 and 3. Some differences exist among these three alternatives, primarily in that Alternatives 3 and 5 would not include any bridges over the river and Alternative 5 includes additional SEZ and floodplain restoration beyond that proposed in Alternatives 2 and 3. The proposed river alignment under Alternative 5 would be the same as that for Alternatives 2 and 3 (Table 5). The proposed streambed treatments and profile conditions under Alternative 5 would be the same as those for Alternatives 2 and 3 (Table 6), except that the water intake and boulder step at RS 2300 would not be needed. The proposed bank treatments under Alternative 5 would be the same as those for

Alternatives 2 and 3 (Table 7). The proposed excavation of inset floodplain, and the backfilled channel treatments under Alternative 5 would be the same as under Alternatives 2 and 3 (Tables 9, 10). Alternatives 2, 3, and 5 all treat the mouth of the unnamed creek and remove the four pedestrian/cart path bridges on Angora Creek.

References

River Run 2006. Upper Truckee River Restoration Project California Department of Parks and Recreation Reach Riparian Ecosystem Restoration Feasibility Report. Prepared for California Department of Parks and Recreation.

Swanson Hydrology + Geomorphology March 2004. (Final) Upper Truckee River, upper reach environmental assessment. Report prepared for the Bureau of Reclamation, Tahoe Resource Conservation District, and Regional Water Quality Control Board-Lahontan Region.

Swanson Hydrology + Geomorphology. October 2004. (Final) Amendment Report. Upper Truckee River Upper Reach Reclamation Project. Prepared for Tahoe Resource Conservation District and U.S. Bureau of Reclamation.

Swanson Hydrology + Geomorphology January 2004. Upper Truckee River Lake Tahoe Golf Course Hole 6 Design Report (Draft). Prepared for the California Department of Parks and Recreation and the American Golf Corporation.

APPENDIX C

Conceptual Treatment Descriptions and Typical Sketches

Upper Truckee River Restoration and Golf Course Reconfiguration Project
Appendix C

Conceptual Treatment Descriptions and Typical Sketches

Compiled by

Valley & Mountain Consulting

South Lake Tahoe, CA

July 2009

Introduction

The following text and figures provide conceptual descriptions of the proposed treatment activities and features of the alternatives carried forward for analysis in the EIR/EIS/EIS. These descriptions have been developed through an iterative conceptual design process between State Parks and their consultants over the last few years. Most of the specific descriptions included here are cited from assessment and preliminary design information provided by prior studies (SH+G January 2004, March 2004, October 2004; River Run 2006). For some topics, State Parks and Valley & Mountain Consulting have incorporated information from recent designs and implementation experience on other similar river and wetlands restoration projects in the Lake Tahoe Basin. Information regarding the location of proposed treatment activities by alternative is included in the body of Chapter 2 "Project Alternatives" of the draft EIR/EIS/EIS and in Appendix B "Proposed River and Floodplain Treatments by Alternative".

River Channel

Modified Existing River Channel

The Modified Existing River Channel treatment would include installation of multiple specific bed stabilization and/or bank protection measures, along with aquatic habitat enhancements (bed topography and materials; LWD features), making only minor changes to the channel location, elevation, or dimension.

To the degree feasible, modifications to the existing channel will be designed to reduce the channel width and depth (and at a minimum, the treatments would prevent channel enlargement).

In the locations with armored riffles, the final grade would be an average of two feet higher (positive grade) than the existing channel bed and final bank treatments at armored riffle locations would include additional roughness and resistance to help narrow the channel. The restoration concept relies on natural geomorphic processes (e.g., sediment deposition and bar formation, vegetation colonization, woody debris recruitment) in the existing channel to adjust the channel shape and size between the modified segments .

Final configuration of the channel bed and the bed materials may include measures to increase pool sizes, cover, and suitable substrate for aquatic habitat. Additional/supplemental aquatic habitat enhancements may be incorporated, if hydraulic analysis indicates they will not produce adverse local effects on the channel stability.

The design assumption is that natural processes of erosion and deposition will establish appropriate channel dimensions over time in areas of existing channel where the stream is not fully reconstructed (River Run 2006).

Reconnected Historic River Meanders

The Reconnected Historic River Meanders treatment would make topographic, vegetative, and substrate changes within abandoned meanders still present on the terrace surface(s) (Exhibit 1).

The conceptual design of the proposed target channel uses a design discharge of 550 cfs, with a top width of about 70 ft, bottom width of about 50 ft, and a maximum depth of about 3.5 feet (River Run 2006). Varied amounts of excavation and reshaping would be needed to meet design elevations and dimensions. Excavation and shaping of the channel bottom, modifications to streambank heights and angles (at least on the inside of bends), would be required as part of the reconnection.

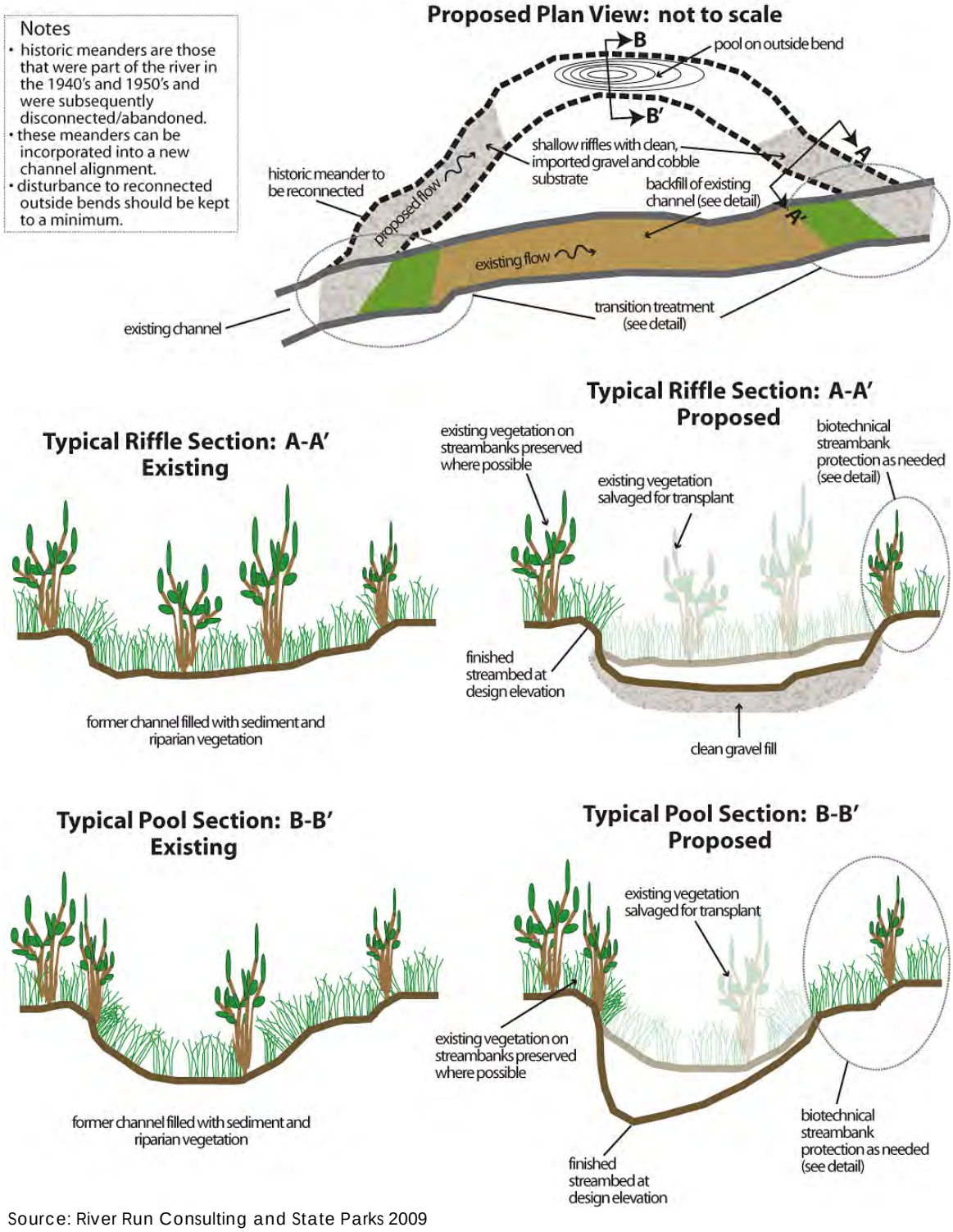
In the downstream portion of the project area (i.e., sub reaches 1D/1E), one to two feet of excavation would be anticipated to meet design elevations in the reconnected meanders. Further upstream (i.e., sub reaches 3A/3B), the reconnected meanders may require an average of three feet of excavation to meet design grade. In all cases, the upper one foot of material would generally include salvaged soil and vegetation to be reused.

Final alignment location decisions will prioritize locations where robust existing woody vegetation is along the remnant channel banks. Existing vegetation on the proposed streambanks would be preserved to the maximum degree possible. The vegetation protection is expected to be about half of the total bank length (assuming alternating sides of the reconnected channel must be disturbed to allow access to the channel and opposite bank, or to be reconfigured). It is possible that bank vegetation protection in some portions of abandoned meanders could be greater than 50 percent if access can occur within the channel and its dimensions and materials are appropriate.

Existing vegetation in the bottom of the channel will need to be removed (it would be salvaged for re-vegetation in other parts of the project).

Final configuration of the channel bed and the bed materials may include measures to increase pool sizes, cover, and suitable substrate for aquatic habitat. Additional/supplemental aquatic habitat enhancements may be incorporated, if hydraulic analysis indicates they will not produce adverse local effects on the channel stability.

RECONNECTED HISTORIC RIVER MEANDER



Source: River Run Consulting and State Parks 2009

Exhibit 1. Conceptual Treatment Sketch: Reconnected Historic River Meander

Constructed New River Channel

The Constructed New River Channel treatment would excavate a channel with desired length, width and depth into the existing terrace surface(s) (Exhibit 2).

The conceptual design of the proposed target channel uses a design discharge of 550 cfs, with a top width of about 70 ft, bottom width of about 50 ft, and a maximum depth of about 3.5 feet (River Run 2006). Additional local cut and fill grading (as needed) would occur to adjust for consistent and appropriate (e.g. outer banks versus point bars) bank heights and angles for the stacked sod and/or other re-vegetation treatments. In all cases, the upper one foot of material would generally include salvaged soil and vegetation to be reused on bank treatments

The new constructed channel final alignment decisions would prioritize locations where robust existing vegetation can be incorporated into proposed bank positions. However, the proposed constructed channel sections are in areas where vegetation has historically been modified for golf course management and there are limited opportunities to incorporate existing woody vegetation into the bank treatments.

The primary type of bank treatment would be transplanted salvaged vegetation and biotechnical: stacked native sod revetments to stabilize outside bends and native sod blankets in straighter portions. Sod materials could be obtained from within the footprint of the new channels, salvaged from the bottom of reconnected meanders, or from adjacent meadows (aside from landscaped areas with non-native sod).

The bed topography would be somewhat varied to range from riffle and pool features where appropriate. The bed material would be comprised of a combination of native material and placed clean cobbles, gravel, and sand.

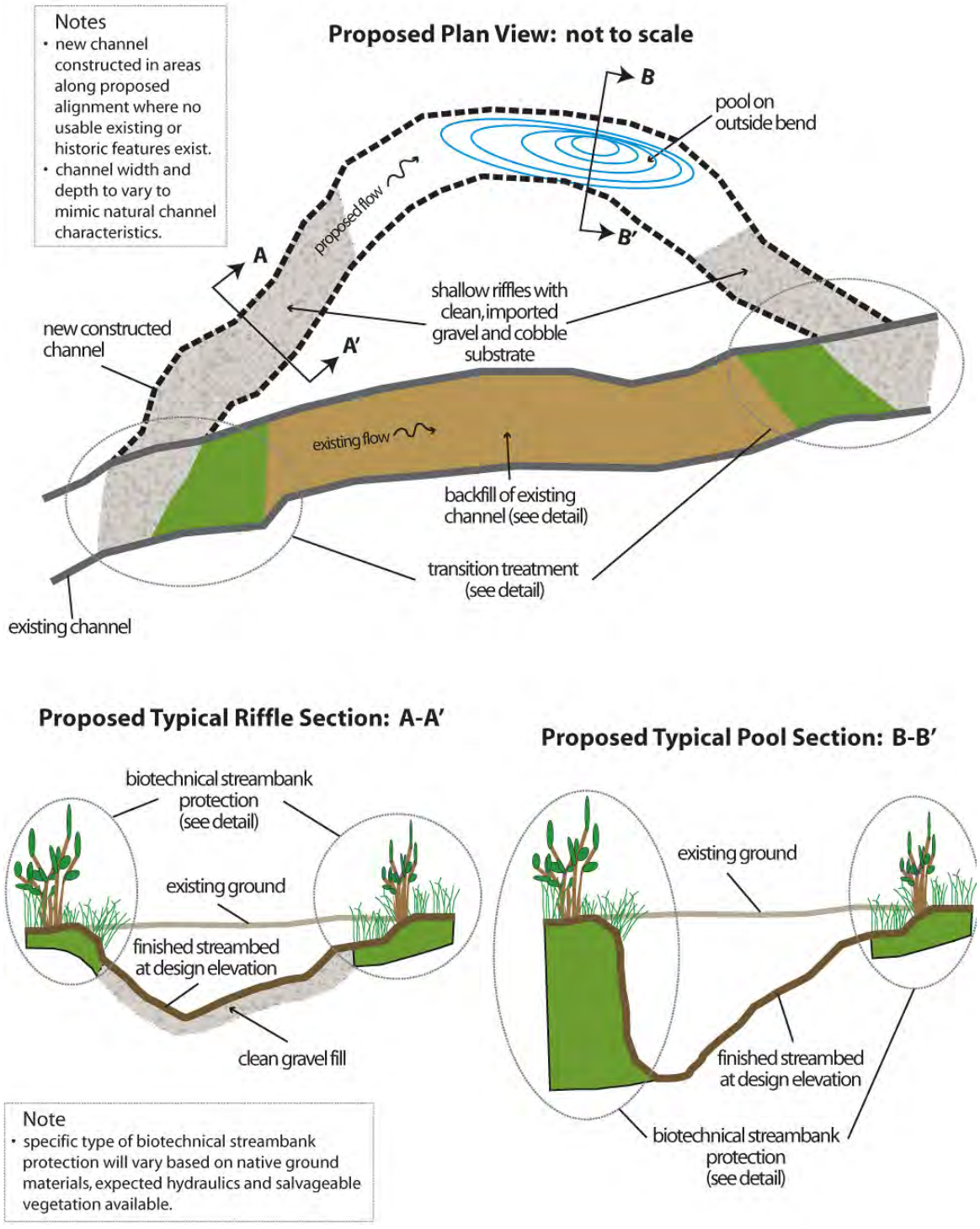
Final configuration of the channel bed and the bed materials may include measures to increase pool sizes, cover, and suitable substrate for aquatic habitat. Additional/supplemental aquatic habitat enhancements may be incorporated, if hydraulic analysis indicates they will not produce adverse local effects on the channel stability.

Streambed Stabilization

Boulder Step Grade Control

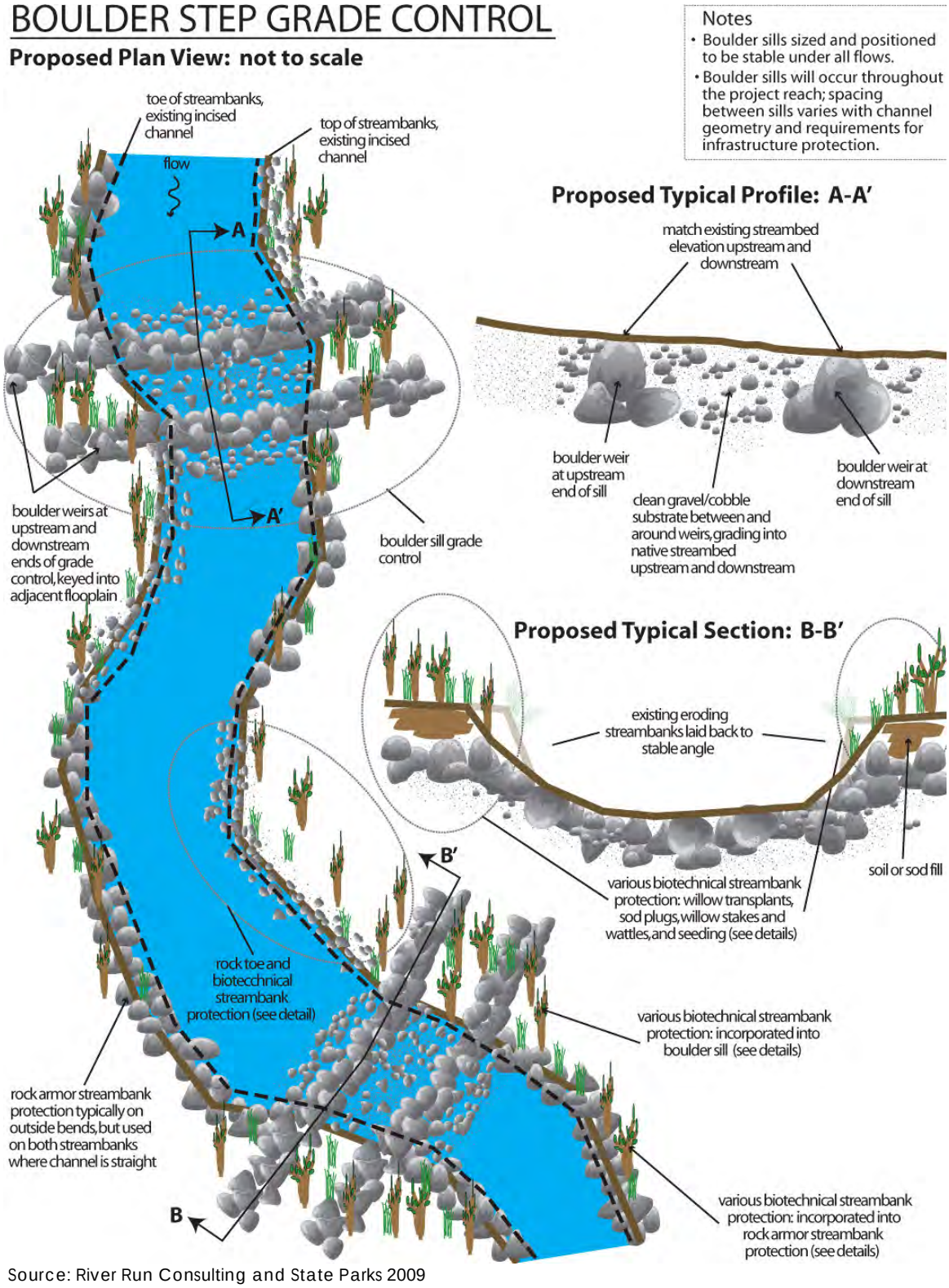
Boulder Step Grade Control treatments could both raise and stabilize the streambed (Exhibit 3). The boulder steps would be 'hard' grade control structures, comprised of boulders sized and installed to remain immobile even during large flood flows (e.g., >100-year peak flow) (River Run 2006). The configuration of the keyed boulders and cobble/gravel fill would be designed to mimic natural step-pool channels, providing functional aquatic habitat.

CONSTRUCTED NEW RIVER CHANNEL



Source: River Run Consulting and State Parks 2009

Exhibit 2. Conceptual Treatment Sketch: Constructed New River Channel



Source: River Run Consulting and State Parks 2009

Exhibit 3. Conceptual Treatment Sketch: Boulder Step Grade Control

In some cases, the vertical grade control would be designed to promote net deposition (aggradation) of bed material (e.g., in modified existing channel reaches), while in other cases they would be designed to just prevent net erosion (degradation) of the bed (e.g., at infrastructure crossings). The average thickness of 4 feet would provide buried foundation, but total thickness would depend on desired positive grade.

To ensure vertical and lateral stability, the boulder steps would have buried (keyed) boulders below the 100-year scour depth and extending at least one-half the channel width into each bank. A typical boulder step would span about 100 ft of channel length, and be about 1.5 times the width of the desired 60 feet active channel (to include buried sections). The structures would be keyed into streambanks to prevent end-run erosion and the disturbed streambanks would be re-vegetated densely and with woody species to enhance roughness and naturalize the finished feature.

Final design would include measures to prevent underflow destabilization (such as sheet pile, compacted fines or similar measures on the upstream side) and/or scour undermining (such as poorly sorted launch stone on the downstream side).

Anchored High Gradient Riffle Grade Control

Anchored High Gradient Riffle Grade Control treatments could both raise and stabilize the streambed (Exhibit 4). The anchored high gradient riffles would be a combination of 'hard' and 'soft' grade control elements, made with some keyed-in large diameter material sized to remain immobile under large flood flows (e.g., 100- year peak flows), with intervening coarse riffle material sized to become mobile occasionally, under moderate flood flows (e.g., 10-year peak flow).

The high gradient riffle configuration and materials would mimic steep natural riffles, with buried substrate sized to be resistant to movement during the target high flows. Pool bed morphology may also be integrated as appropriate. For the conceptual design, the anchored high gradient riffles would be applied at the reach scale, and are assumed to be around 300 feet long. The AHGR would be installed in the existing channel alignment at the upstream and downstream extents of the project reach to connect to adjacent untreated reaches and provide grade contraol for all action alternatives.

Armored Riffle Grade Control

Armored Riffle Grade Control treatments could both raise and stabilize the streambed. The armored riffles would be 'soft' grade control structures, made of a range of gravel and cobble, with a surface layer of material designed to remain immobile up to moderate flood flows (e.g., 10-year peak flow) (River Run 2006).

The existing riffles are naturally armored with a coarser surface layer. The riffle configuration and materials would mimic natural riffles, but with substrate sized to be resistant to movement during the target flows. They would be similar in

shape and design to the riffle portions of the anchored high gradient riffle (Exhibit 4), but smaller scale.

For the conceptual design, the riffles are assumed to average 60 feet in width and 3 feet in thickness. The dimensions will need to be larger in some areas of the existing channel areas. The conceptual riffle slopes would be about 0.15 percent, but the length, slope, cross-sectional geometry, substrate composition, and specific locations of armored riffles could be modified during detailed design based on analysis of hydraulics and substrate movement, along with other design factors (e.g., aquatic habitat, infrastructure locations).

To prevent lateral channel movement from destabilizing the armored riffles, buried coarse substrate (e.g., cobble) might also be extended at least one-third the channel width or to the edge of the active (~5-year) floodplain in trenches capped with native sod.

Armored riffle substrates used in grade control can also provide spawning substrate, and habitat for aquatic macroinvertebrates.

Streambank Protection

Rock Armor Streambank Protection

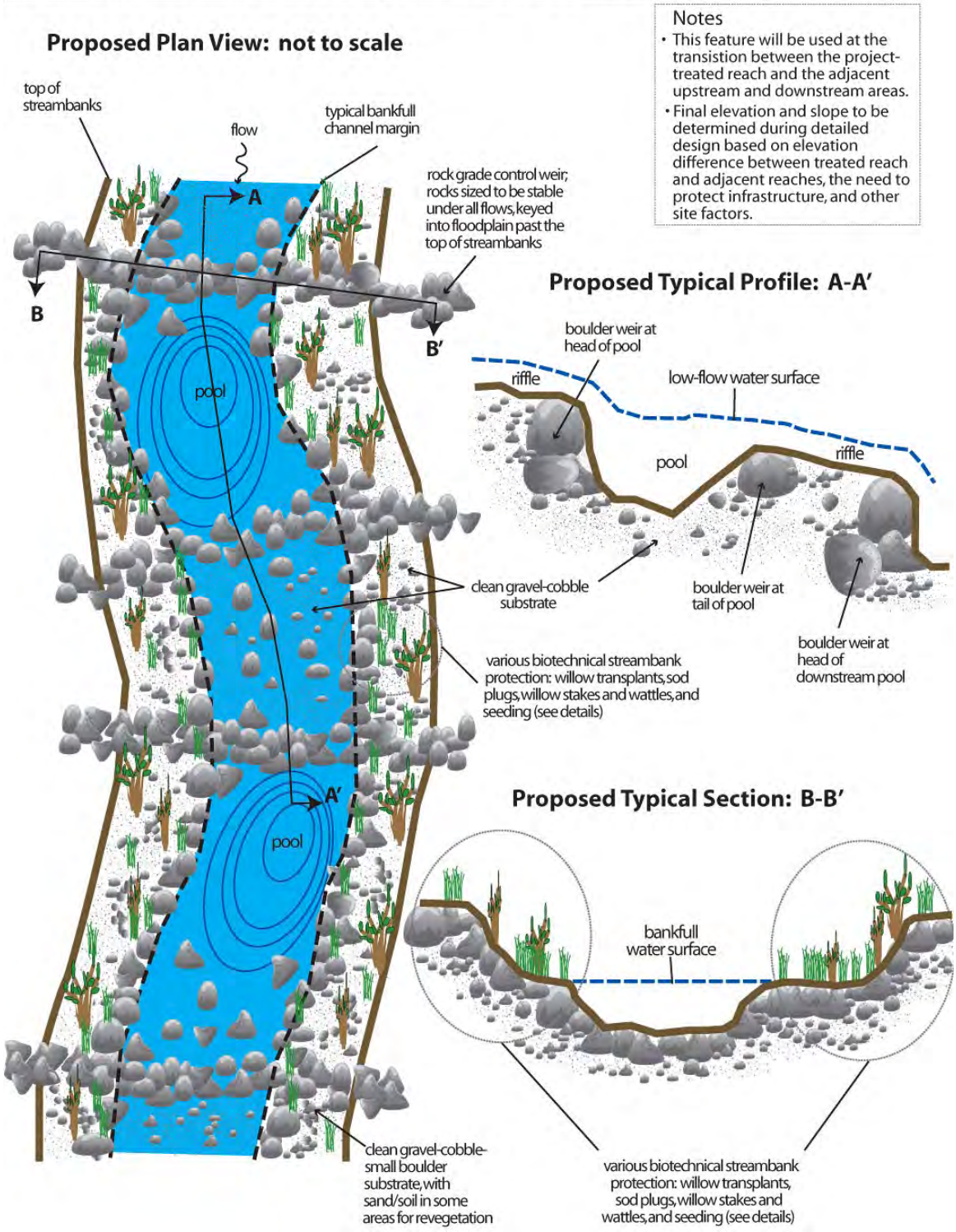
Rock Armor Streambank Protection treatments would include a combination of local cut and fill to modify the shape and height of streambanks along with placement of stable rock at the base of the streambank and use of biotechnical treatments on the upper bank (above a design flow stage) (Exhibit 5). This treatment is intended to stabilize the bank in its constructed location and prevent bank erosion or migration.

The intent of the cut and fill topographic treatment would vary by site, but could include: removal of placed fill or non-engineered levee berms; lowering of bank height, reducing bank angle. The design parameters for these aspects would be determined base on target channel dimensions, hydraulic analysis, and bank stability analysis, along with other factors such as anticipated soil moisture and revegetation conditions, as well as constraints due to golf course infrastructure.

The rock size, thickness, height above the channel bed, and keyed depth below the channel bed would vary from site to site based on the target design flow(s), hydraulic analysis, and bank stability analysis of shear stress, along with other factors, such as aquatic habitat (edge conditions and/or cover). Rock Armor would generally be designed to remain stable through the 100-year event.

The type of biotechnical stabilization and the extent of it on the upper bank would depend on the height of rock up the bank needed for stability, along with the bank angle, water surface elevations, soil materials and anticipated soil moisture conditions. Treatments could range from several types of live plantings to mixed live material, Large Woody Debris, and rock.

ANCHORED HIGH GRADIENT RIFFLE GRADE CONTROL

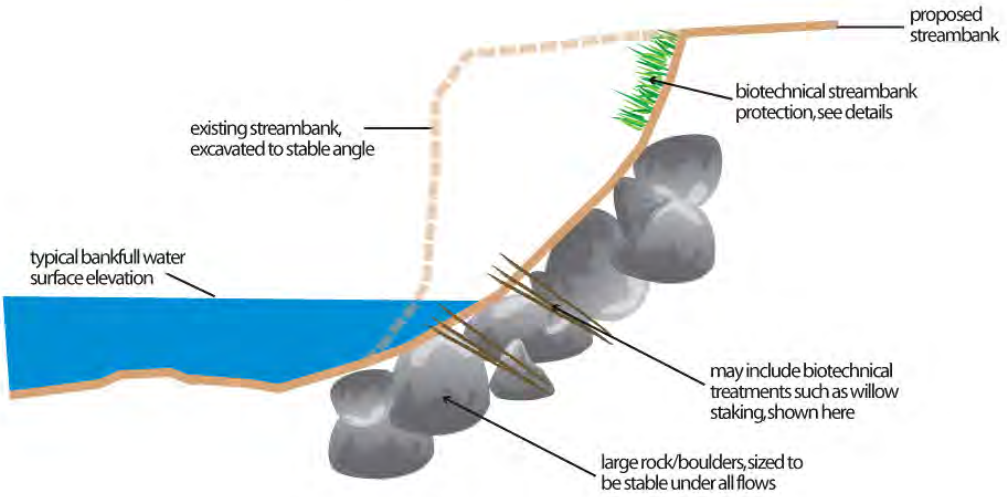


Source: River Run Consulting and State Parks 2009

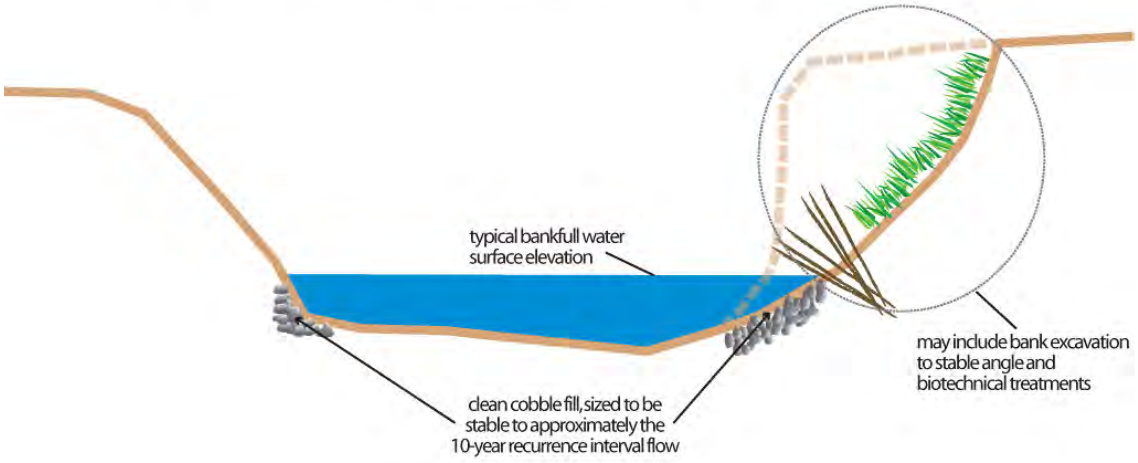
Exhibit 4. Conceptual Treatment Sketch: Anchored High Gradient Riffle Grade Control

ROCK ARMOR STREAMBANK PROTECTION

Proposed Rock Armor Streambank Protection Typical Cross Section



Proposed Rock Toe Streambank Protection Typical Cross Section



Source: River Run Consulting and State Parks 2009

Exhibit 5. Conceptual Treatment Sketch: Rock Armor Streambank Protection

The rock-toe variation of this treatment is not intended to stabilize the bank in its constructed location over the long-term. Rather it would provide greater initial (5-10 year) resistance than biotechnical measures alone, while allowing natural bank migration over the long-term. The rock-toe variant would be stable up to approximately the 10-year flow event, with rock size and height sized accordingly.

Biotechnical Streambank Protection

Biotechnical Streambank Protection treatments would include a combination of local cut and fill to modify the shape and height of streambanks along with installation of biotechnical treatments on the entire bank (Exhibits 6 and 7). The incorporation of rock material would be limited, but rock toe may be locally incorporated as needed.

The intent of the cut and fill topographic treatment would vary by site, but could include: removal of placed fill or non-engineered levee berms; lowering of bank height, reducing bank angle. The design parameters for these aspects would be determined based on target channel dimensions, hydraulic analysis, and bank stability analysis, along with other factors such as anticipated soil moisture and revegetation conditions, as well as constraints due to golf course infrastructure.

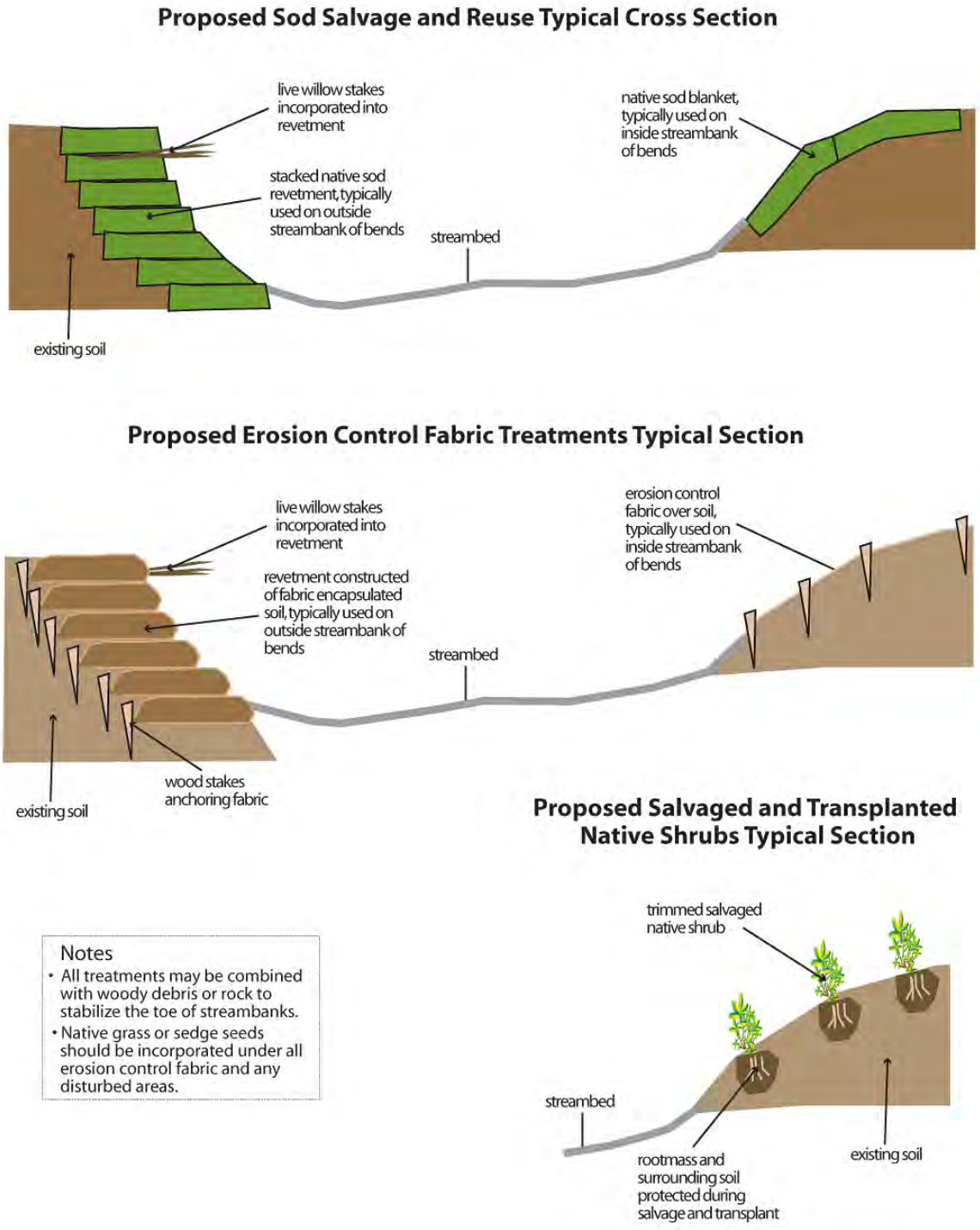
A combination of treatments could be used on a particular bank, with differences in their resistance to hydraulic shear, their roughness, and their benefits to bank strength (rooting depth, density, and water use). The type of biotechnical stabilization and the extent of it on the bank would depend on the shear resistance needed for stability, along with the bank angle, water surface elevations, soil materials and anticipated soil moisture conditions.

Treatments could range from salvaged sod, shrubs and trees, several types of live plantings to mixed live material, incorporation of erosion control fabrics, and minor use of rock. Final designs would be based on the target design flow(s), hydraulic analysis, and bank stability analysis of shear stress, along with other factors, such as aquatic habitat (edge conditions and/or cover).

Woody Debris Features

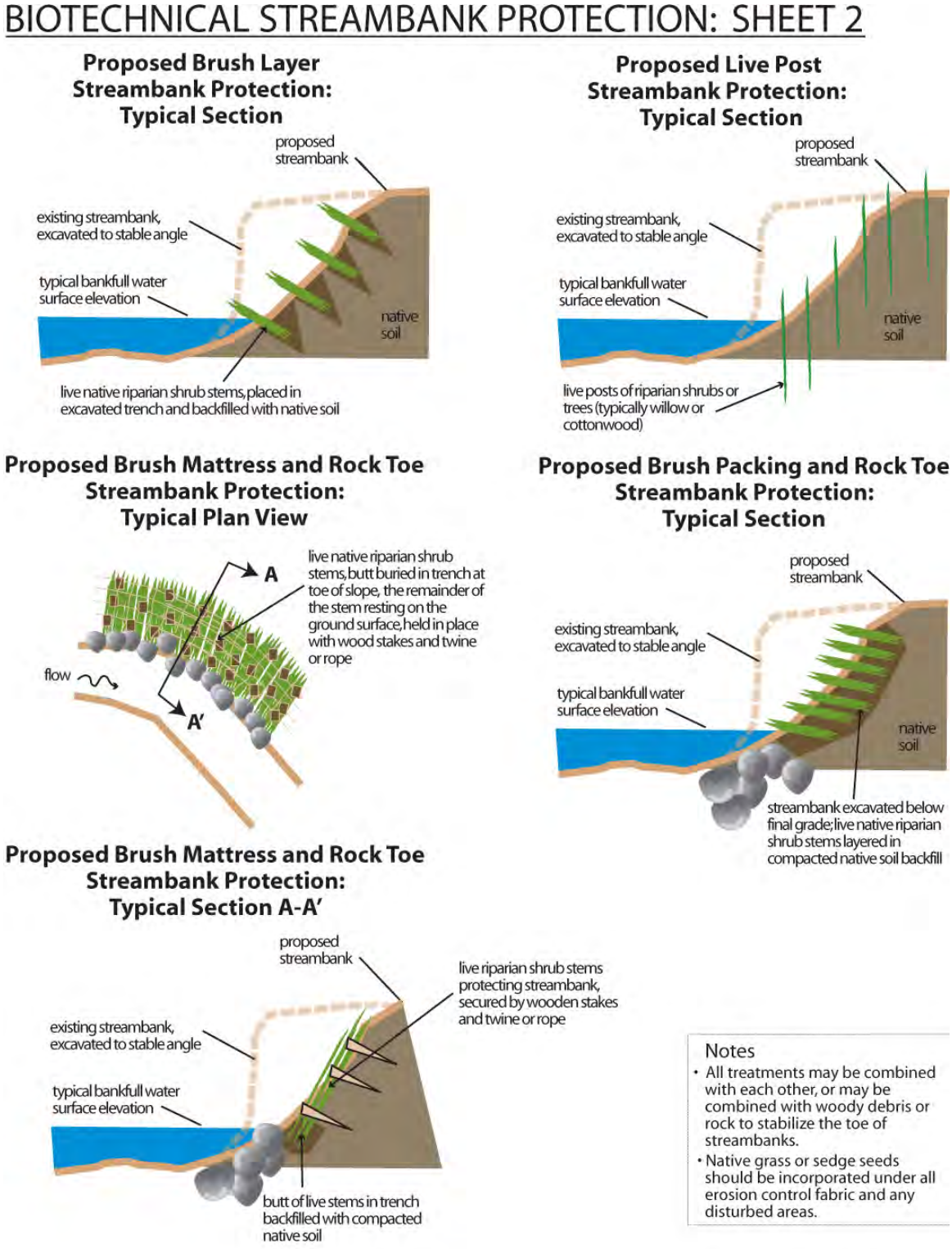
Woody Debris Features could be incorporated in a couple of situations, to either protect eroding or vulnerable streambanks or to locally enhance aquatic habitat. The habitat features could be minor features that are modified channel bars, with partially submerged logs, keyed into the floodplain or excavated floodplain bench and extending in to the channel margins. At any location, they would occupy less than about 15% of the active channel area. They would provide hydraulic roughness and improve channel bar resistance to erosion. Their height may be extended up to about the 5-year peak flow water surface. The woody features might be tied into the top-of-bank at the margin of the active floodplain where it meets the terrace.

BIOTECHNICAL STREAMBANK PROTECTION: SHEET 1



Source: River Run Consulting and State Parks 2009

Exhibit 6. Conceptual Treatment Sketch: Biotechnical Streambank Protection, Sheet 1



Source: River Run Consulting and State Parks 2009

Exhibit 7. Conceptual Treatment Sketch: Biotechnical Streambank Protection, Sheet 2

For the purpose of streambank protection, woody debris could be configured as hydraulic deflectors along channel margins, taking up less than 20% of the channel area, and may require partial buried or use of boulder weights to prevent floatation. These jams would be carefully configured to avoid increasing overall streambank erosion or affecting the function of other planned bed and bank treatments.

The other woody debris features for streambank protection would include brush boxes (Exhibit 8), comprised of branches and large wood that is anchored in place in front of eroding or vulnerable streambanks to increase roughness in the channel and decrease shear stress at the earthen bank.

Transition Treatments

Transition Treatments are those that would be installed between existing, reconnected, or constructed channel segments. These treatments will combine streambed stabilization and streambank protection treatments to ensure a stable and relatively smooth hydraulic connection between proposed channel segment types (Exhibit 9). The streambed protection measures would likely be armored riffles in the existing channel). The streambank treatments along the banks facing the active channel adjacent to plugged abandoned channel would have compacted soil and biotechnical measures such as stacked sod (see Exhibit 6). A special type of floodplain restoration, complete backfill (see Exhibit 10), would be used as part of the transition treatments in the abandoned existing channel adjacent to the proposed active channel.

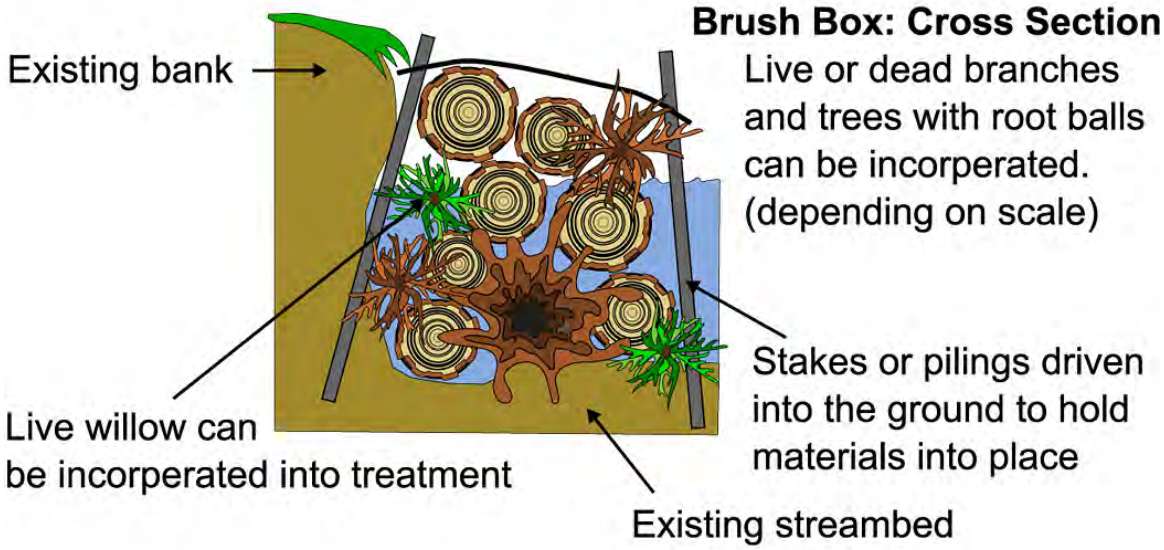
Hydraulic analysis during final design may result in treatments at the transitions that include other combinations, such as: the use of rock armor streambank protection; living woody vegetation; and, large woody debris features.

Floodplain Restoration

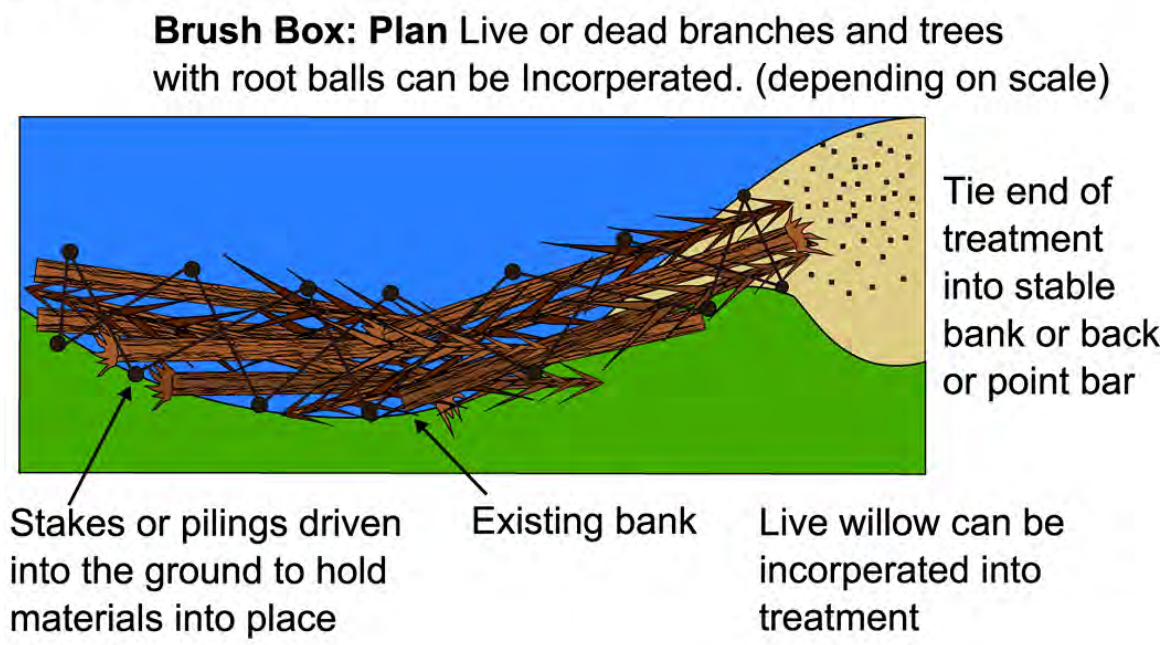
Backfilled Channel

The Backfilled Channel treatment would feature a couple of variations that creates a surface that is either: (1) 'level' with the adjacent terrace/floodplain surface and relatively uniform topographic surface without distinct ponds or pools; or, (2) 'partially' filled, but lower than the adjacent terrace/floodplain surface and may include swales or low areas(Exhibit 10).

Brush Box: Cross Section



Brush Box: Plan



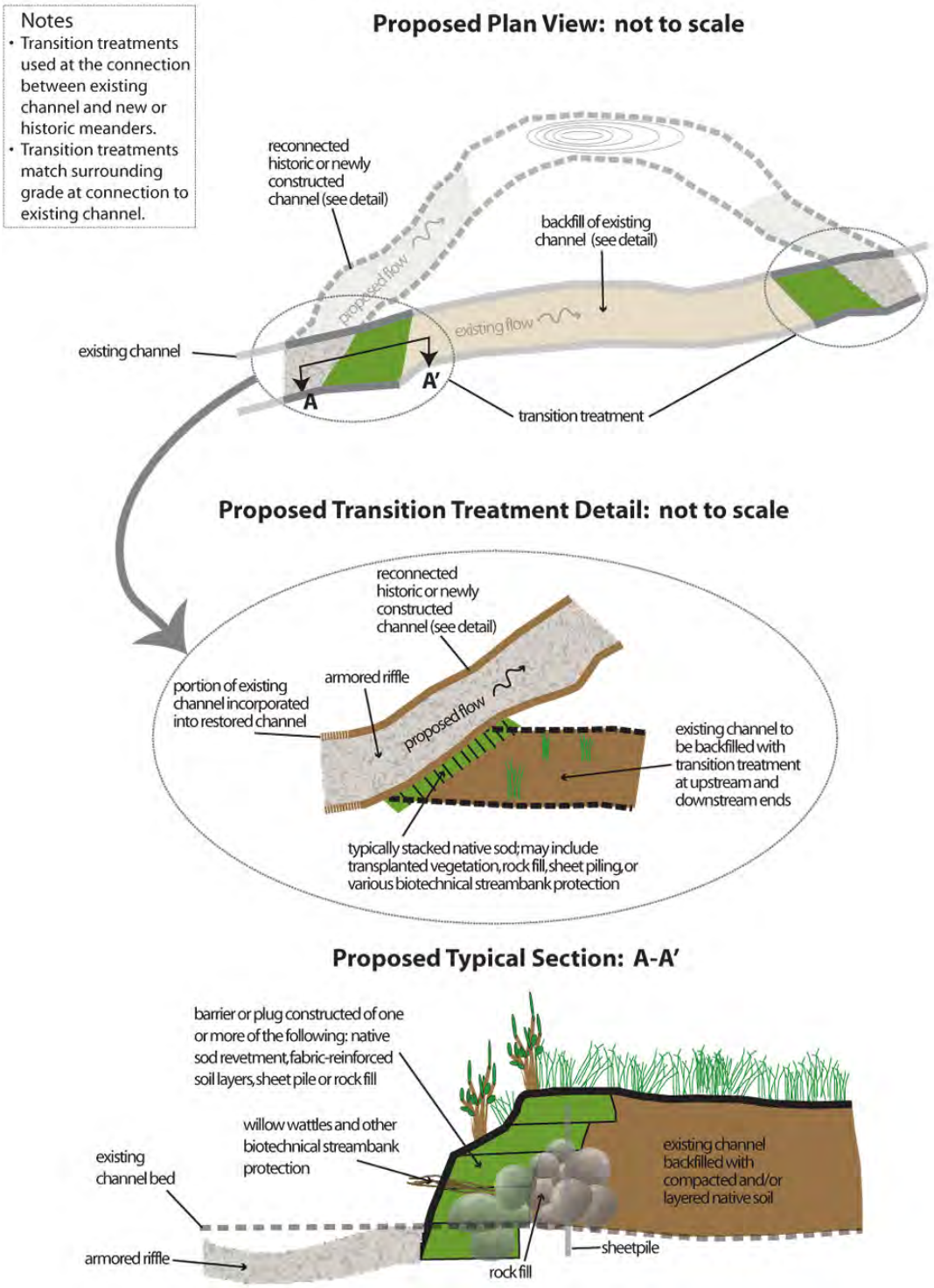
Note: Size of material used depends on the scale of treatment site

Source: River Run Consulting and State Parks 2009

Exhibit 8. Conceptual Treatment Sketch: Brush Box

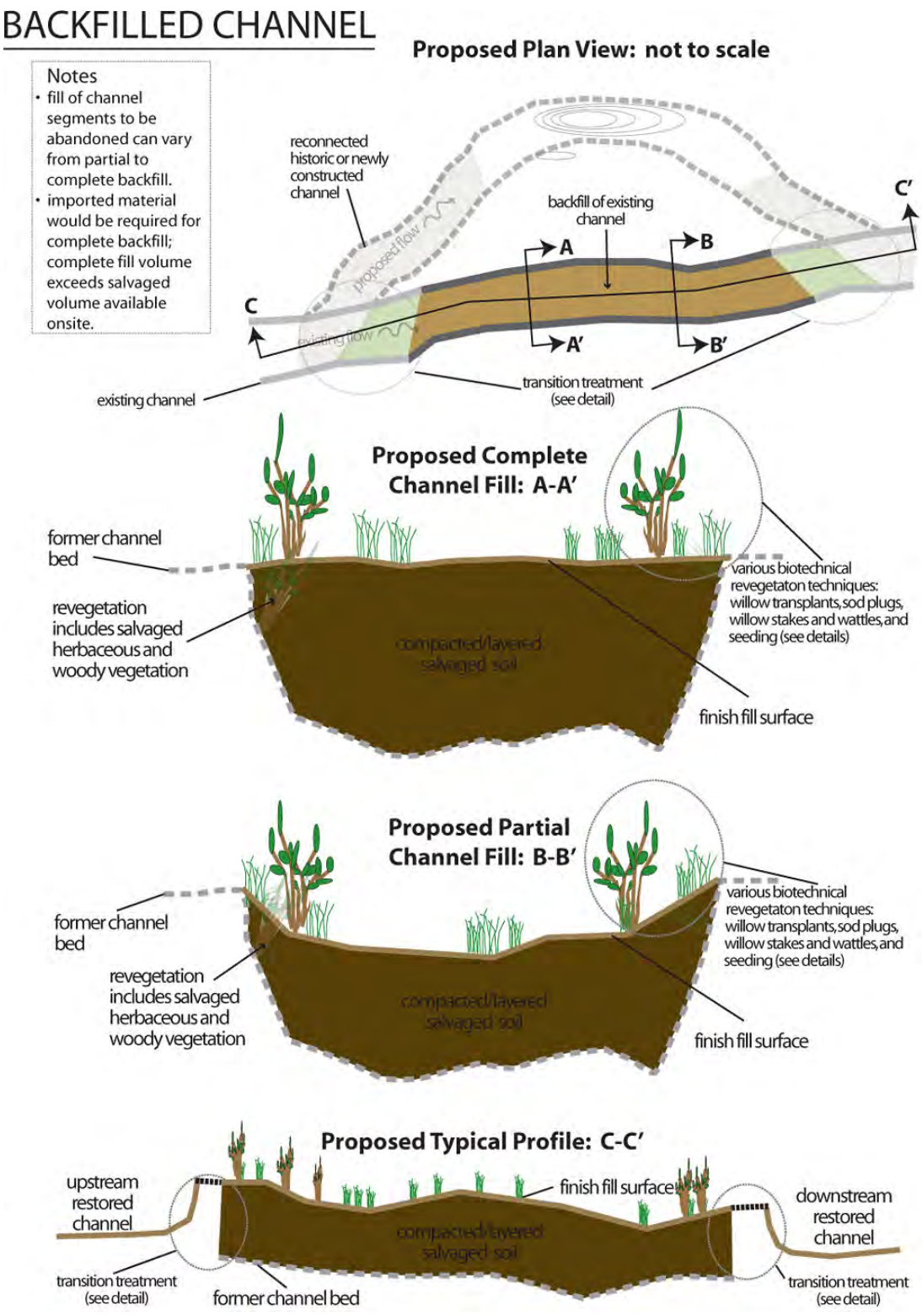
NOTE: Need updated brush box exhibit from State Parks

TRANSITION TREATMENT



Source: River Run Consulting and State Parks 2009

Exhibit 9. Conceptual Treatment Sketch: Transition Treatment



Source: River Run Consulting and State Parks 2009

Exhibit 10. Conceptual Treatment Sketch: Backfilled Channel

Complete backfill would involve placing fill in sections of existing channel (those that would be abandoned) up to the elevation of the adjacent terrace/floodplain. Some microtopography variations would be maintained, and the geomorphic function would be similar to adjacent terrace/floodplain (only inundated during large flood flows). Re-vegetation of the new surface would incorporate a mixture of salvaged/transplanted sod and willow, willow wattles, and new plantings. The backfilled channel sections would be stabilized with vinyl sheet piling across the upstream ends of backfilled channels, within stacked sod and compacted soil plugs. The plugs would be at least 40 to 50 feet long, extend across the entire blocked channel width and have a finished ground surface that is equal to or slightly higher (up to +1.0 ft) than the existing adjacent surfaces (River Run 2006).

Partial backfill would mimic oxbows and abandoned meanders such as those present in the study area. Partial backfill treatment would place fill in sections of existing channel (to be abandoned) up to an elevation about two to three feet lower than the adjacent terrace/floodplain. The surface would be part of the backwatered floodplain and function as a floodplain overflow channel only during streamflows that exceed the design flow of the proposed main channel similar to the complete backfill. Some microtopography variations would be maintained on the new surface, but there would be a net flow direction and path to limit stagnant water after flow events. Re-vegetation of the new surface would incorporate a mixture of salvaged/transplanted sod and willow, willow wattles, and new plantings, and would have more resistant rock or log materials incorporated near the inlet and outlet (adjacent specific vertical and/or lateral grade controls).

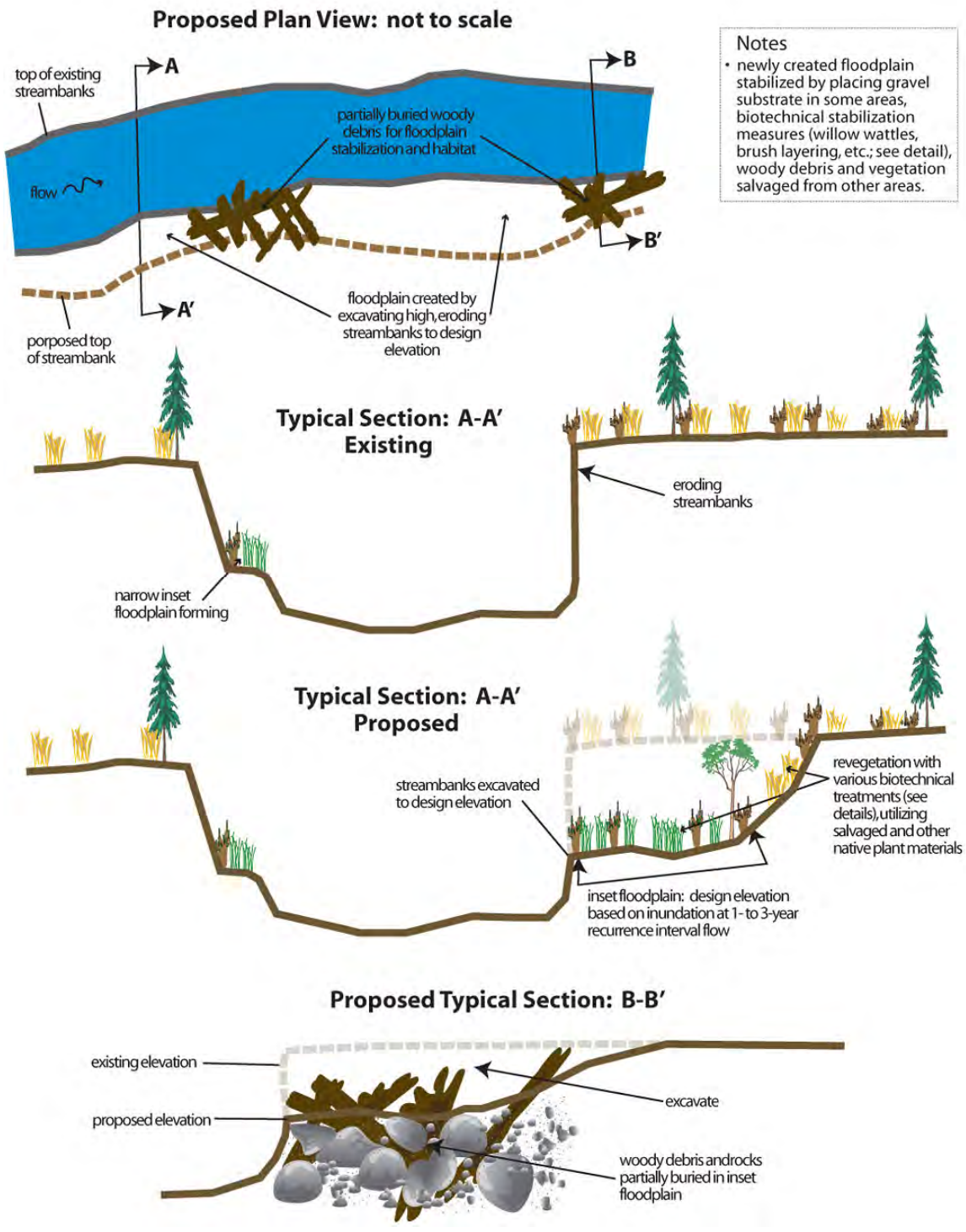
The plugs at the upstream ends of backfilled channel sections would be designed to force all flows up to the design flow (550 cfs) into the proposed new or reconnected meander. However, a portion of flood flows greater than the design bankfull flow could be allowed into the backfill channels, promoting the floodplain function and diversity of natural abandoned meanders. Therefore, the fill would need protection against erosion with techniques such as internal sheet piling or armoring of overflow paths. The designated streamflow at which overflow into the backfill channels might occur would be selected during final design, based on the hydraulic analysis, desired active channel flows and water elevations, and other factors related to the floodplain flow paths and residence time.

The final area and configuration of shallow (partial) backfill would need to and maximize groundwater and soil water continuity across the floodplain.

Inset Floodplain

The Inset Floodplain treatment would excavate portions of the existing terrace banks along one or both sides of the active channel, to a depth that leaves an appropriate bank height for overbank flows approximately at the design flow (Exhibit 11).

INSET FLOODPLAIN



Source: River Run Consulting and State Parks 2009

Exhibit 11. Conceptual Treatment Sketch: Inset Floodplain

Floodplain excavation would reduce active channel bank height and provide additional conveyance capacity for large flood flows between the high terrace banks.

The design width and configuration of the excavated floodplain could be modified based on a number of criteria: extent of severe bank erosion; hydraulic characteristics of the final channel and bridge design; protection of existing vegetation, or other factors.

The width of the excavated floodplain would be determined based on the area and capacity of flow desired between the remaining banks, constraints due to golf course infrastructure, and the location could be adjusted to incorporate robust existing terrace vegetation into the residual terrace banks that would remain after excavation.

The top portions of selected terrace banks would be removed, removing their relatively fine material and organics and leaving the coarser materials of the lower banks as part of the new active channel banks. Salvaged soil and plant materials would be used in stabilizing and revegetating the newly excavated floodplain, and some gravel and cobble would be placed to improve scour resistance on the floodplain (SH+G 2004).

In areas where the inset floodplain will be around curves in the river, bank stabilization that includes rock armor streambank protection would be likely, and/or boulder groins or Large Woody Debris features could be installed to direct high flows and reduce potential bank erosion along the terrace base.

Re-vegetation of the lowered surface would incorporate a mixture of salvaged/transplanted sod and willow, willow wattles, and new plantings.

Willow wattles oriented perpendicular to flow could be planted at intervals, providing both resistance to erosion and germ stock. Willow wattles could also be used on the residual terrace at the outer edge of the inset floodplain.

Restored Floodplain

The Restored Floodplain Treatment would be used where the existing golf course land uses are being discontinued and any infrastructure and non-native vegetation could be modified to restore the topography, hydrology, soils, and vegetation conditions of a natural floodplain. The treatments would include earthwork to remove unnecessary fill and grade the areas to restore more natural topography, as well as various soil treatments and re-vegetation methods to achieve target plant communities and/or terrestrial habitats.

There will be variations in the design for various zones of the restored floodplain, based on their expected frequency of inundation, differences between existing and desired conditions, future buffer distance from incompatible land use, or other engineering and biological factors. The following descriptions of possible treatments cover a conceptual range of approaches that could be used (River Run 2006).

Where the elevation of the ground was raised in golf course construction, (e.g.,greens, tee boxes, and spoils "levees") the historic topography would be restored by removal of non-native material and/or local grading. The final elevation would be no more than one foot above the elevation of late spring/early summer groundwater. In other areas where the naturally diverse and complex topography was smoothed for golf course landscaping, grading would be used to re-create topographic variability similar to natural floodplains or oxbow features.

Along linear features (e.g., golf cart paths), flow breaks would be installed in the form of stacked turf or fiber-wrapped, seeded soil rising slightly above and extending a several feet on either side. The rebuilt soil profile would be vegetated with a combination of regionally collected seed, salvaged native sod, and willow (cuttings, stubs, or entire rooted clumps). At suitable locations, willow plantings would be clustered to reestablish willow-meadow complexes. Where willows are desired but pre-existing relict turf is present, measures would be applied to create a competitive advantage for willow over the meadow vegetation in which they would be planted.

Turf and fill removal with seeding would be applied in areas of elevated fill with buried natural soil that has viable native meadow rhizome. Existing golf turf and sand would be salvaged for other restoration use and/or disposed off-site, some turf and sand will be tilled into soil. The disturbed surface would be seeded with additional desirable species (e.g., Deschampsia cespitosa) and mulched.

In areas where the golf course topography is generally suitable, but the soil lacks viable buried native rhizome bank, and/or the soil conditions are not conducive to the desired vegetation type, soils would be deep-ripped and amended. The prepared soil areas would be seeded, planted with plugs of desired species, and mulched.

The areas anticipated to support mesic meadow, lodgepole pine (mesic or dry type), and dry meadow would be treated with ripping and planting in bands oriented along topographic contours, alternating with parallel bands of the seeding and/or abandonment treatments described below.

Seeding over existing golf course turf may be used in locations where the existing vegetation is desired for erosion protection, and/or the soil profile would not require modification to support the desired future vegetation.

Turf abandonment may be used in locations where existing vegetation has native wet meadow graminoids present and vigorous. Native species such as Carex nebrascensis that grow up through the turf and readily out-compete the grass turf and reestablish wet or mesic meadow habitat with the restored hydrology. During the transition period before native species dominate, existing turf would provide erosion protection.

Seeding and plug plantings would generally be followed by application of mulch (loose or hydraulically applied), or rolled turf pre-grown from native seed in coconut fiber turf-reinforcement mats to provide initial erosion protection.

Recontoured Floodplain Pond

The Recontoured Floodplain Pond treatment would be used where the existing constructed water features will no longer be used for the associated water supply, irrigation, or drainage purposes. Their topography, hydrology, and vegetation could be modified to restore conditions of a natural floodplain. The treatments would include earthwork to locally fill and grade existing deep constructed ponds (that would be abandoned) to resemble natural floodplain swales or remnant meanders. The topography, soil treatments and re-vegetation methods would be implemented to achieve target plant communities and/or aquatic and terrestrial habitats.

Final location(s), areas and configuration of recontoured floodplain pond would be determined in coordination with the selected golf course configuration and evaluation of its water feature needs. The design would need to maximize groundwater and soil water continuity across the floodplain.

References

River Run 2006. Upper Truckee River Restoration Project California Department of Parks and Recreation Reach Riparian Ecosystem Restoration Feasibility Report. Prepared for California Department of Parks and Recreation.

Swanson Hydrology + Geomorphology March 2004. (Final) Upper Truckee River, upper reach environmental assessment. Report prepared for the Bureau of Reclamation, Tahoe Resource Conservation District, and Regional Water Quality Control Board-Lahontan Region.

Swanson Hydrology + Geomorphology. October 2004. (Final) Amendment Report. Upper Truckee River Upper Reach Reclamation Project. Prepared for Tahoe Resource Conservation District and U.S. Bureau of Reclamation.

Swanson Hydrology + Geomorphology January 2004. Upper Truckee River Lake Tahoe Golf Course Hole 6 Design Report (Draft). Prepared for the California Department of Parks and Recreation and the American Golf Corporation.

APPENDIX D

Upper Truckee LVSRA WMSP Bridge Report

Appendix D

Upper Truckee LVSRA WMSP Bridge Report

Cyndie Walck, CA State Parks Engineering Geologist with input from Jim Haen PE

July 2008

This is a brief report on potential bridge locations and designs for various alternatives in the EIR EIS for Upper Truckee restoration and potential golf course reconfiguration at Lake Valley State Recreation Area/Washoe Meadows State Park. Besides off-site re-location of the golf course, the alternatives being considered include:

Alternative 1: No Project/No Action
Alternative 2: Geomorphic/Ecosystem Restoration with 18-hole Regulation Golf Course
Alternative 3: Geomorphic/Ecosystem Restoration with Reduced Golf Course Area
Alternative 4: Engineered Stabilization (In Place) (no change to golf course)
Alternative 5: Geomorphic Restoration with No Golf Course

Alternatives 2, 3, and 5 would remove all existing bridges. In Alternative 1 we would only replace bridges if one begins to fail. Alternative 4 would keep most of the existing bridges in approximately the same location but the bridges at holes 6 and 7 would need to be replaced with one longer bridge in between the two existing bridges. Alternative 2 would be a new longer bridge or pair of bridges that span the floodplain about 100 feet downstream of the current hole 7 bridge. Alternatives 3 and 5 would not have a bridge. See Figure 1 for bridge locations.

The 1.5 year channel design flow is estimated by various researchers to be 450 to 550 cfs. The 5 year flow is estimated at 1,300 to 1,600 cfs. The 100 year flow is estimated at 4,300 to 7,700 cfs.

<u>Alternative 2</u>

Initially two potential sites were considered for location of a bridge under this alternative: One site is between current holes 6 and 7 bridges and a second site is approximately 1,000 feet downstream by cross section 7M in the straight reach at long profile distance 6,500 to 7,000. The site between holes 6 and 7 was subsequently rejected because it is a transitional reach of the river and is naturally an area of adjustment and channel and bed movement. It also has instability due to impacts from the existing bridges which add to risk at this site. The second site is more stable, in a straight reach with a naturally high area on the right bank, and is the preferred site.

The river in this area is in glacial outwash and moraine deposits with a prominent glacial lacustrine clay layer in the bed. The channel banks show active erosion on the south bank and some inset floodplain is present. The restored channel would raise the bed by a couple of feet in this reach, but the banks would still be at about a 3 to 5 year height. To reduce stress on the banks the inset floodplain would be widened in this reach. This would entail excavation of an

inset floodplain and laying back and vegetating the stream banks. This would give a cross section width of 110 to 150 feet (see cross section, Figure 2).

The bridges would need to accommodate both 2-way golf cart traffic, service vehicles, and other recreationalists (hikers/bikers using other parts of the park). Parks could use either two narrow (8' to 10') bridges or one wider (approx 15' to 20') bridge. The bridge length would be 135 to 200 feet.

Currently the golf course has five prefabricated weathering steel bridges manufactured by Continental Bridge. For aesthetic consistency, longer spans provided by this manufacturer were evaluated and estimated. Long span bridges (100 to 200 feet, as well as intermediate lengths) are available in the 10 foot, 15 foot and 20 foot widths considered for Alternative 2.

Two options were considered: 1) clear span of the river channel, and 2) a mid span support in the river channel. The first option reduces the threat of flood debris being snagged by the center structural support. This option is more costly and the erection will be more involved. A bridge configuration with three-point bearing (right, mid and left) will be less massive but will require construction access to the middle of the channel for footing erection. Approximate bridge costs, not including erection, are shown in the "Bridge Cost Table."

Bridge guardrails will conform to the existing course bridge guardrail configuration. Guardrail height will vary with clear span between 3 to 6 feet. Conveyance of the 100-year flood will be uninhibited by all bridge options. A freeboard of two feet minimum between the 100-year flood elevation and the bottom chord of the bridge truss will reduce the risk of debris being snagged. Appurtances attached to bridges, such as irrigation waterlines, will be located on the underside and attached with pipe clamps. The waterlines will be protected by a steel sleeve one pipe size larger than the transmission pipe. See bridge figures 4 through 6 for more detail.

Access to construction site will be along an area that will later become part of new golf course holes that cross the river. Parks would need to do clearing and access roads to put in this new set of holes that cross the river so we can use an area that will eventually become golf course. Staging of bridge materials would be on the right/south bank near the site, again in an area that will become part of golf course fairway.

Transport of bridge sections from an unloading zone near Country Club Drive to the two construction staging areas for each bridge will be provided by 40 foot flat bed trailers on a temporary construction road or existing dirt roads. Brushing and grading of a 16 foot road section may be necessary for access.

A pile driver will access either side of the river to 40 by 50 foot construction staging areas. Lengths of 10 inch steel piles will be hammered to a depth of up to 25 feet. Piles will be spaced at 5 feet, 3 piles for 10 foot widths and 5 piles for 20 foot widths. Steel plate one inch thick welded to the pile cluster supports the bridge bolted connection.

After the pile foundation is complete, 20 ton cranes will be stationed on both sides of the river in order to set and connect bridge sections.

Temporary erosion control fencing and an approved refueling station will be incorporated into each staging area. Allow one week for each bridge installation.

The finished product will resemble the existing pedestrian bridges throughout the course. Decking and railing materials are identical to the existing bridges at holes 6 and 7.

Launchable rip rap could be buried in the banks to limit channel migration and protect the piers, but could be buried, vegetated and essentially invisible. Alternatively biotechnical methods could stabilize the banks.

Bridge Cost Table

Bridge Options	Width	Span	Cost/Ea	# of Units	Total Cost
1	10’	100’	$103,000	4	$412,000
2	10’	150’	$196,000	2	$392,000
3	10’	200’	$390,000	2	$780,000
4	20’	100’	$255,000	2	$510,000
5	20’	150’	$458,000	1	$458,000
6	20’	200’	$676,000	1	$676,000

The above prices do not include taxes, unloading, foundations and erection.

Alternative 4 (and on as needed basis under Alternative 1)

The hole 6 bridge is currently 45 feet long and the hole 7 bridge is 74 feet long (it was replaced in mid 90’s). These bridges are undersized, and contribute to bed and bank instability. The hole 6 bridge causes significant backwater upstream which in turn causes extensive erosion on the downstream side (cross section 4–5M) while acting to stabilize the reach upstream of the bridge. The hole 7 bridge cause a recirculation pattern upstream with large amounts of bank erosion both upstream and downstream that have been temporarily stabilized. Parks would remove both bridges and replace with one 100 to 140 foot span bridge in between the two holes at approximate cross section 4–5L. This would require creating an insert floodplain with buried rip rap and woody debris for lateral stabilization as that reach is transitional and naturally would adjust bed and banks without engineered stabilization. It would also require a hard grade control upstream of hole 6 bridge since that undersized bridge currently acts as a backwater (Swanson Jan 2004 report) and grade control: removal of that bridge would result in head cutting without grade control.

For Alternative 4 bridge widths, configuration and erection will be similar to the Alternative 2 scenario.

Removal of Old Bridges

For Alternatives 3 and 5, all of the bridges on the Upper Truckee would be removed. For alternative 5 we would also remove the smaller bridges on Angora (holes 10 and 11) and the golf course creeks.

Bridges with steel pile footings will require excavation of the piles down two feet below finish grade and cutting of the 10 inch piles. A ½ inch steel plate will be welded to the newly cut end. The quantity of material removed is minimal and all steel products will be recyclable.

Bridges with concrete footing will require jack hammering of the concrete to two feet below finish grade. Exposed reinforcing steel will be cut flush with the concrete surface. Approximately 3 cubic yards of concrete debris will be generated at each footing removal.

Rip rap associated with the bridges would also be removed. Some of it may be re-utilized for other aspects of the project. The bridge removal sites will be evaluated to determine if bio-technical or grade stabilization is needed. Sites will be restored and re-vegetated.

Figures:

1. Site map showing location of current bridges, proposed bridge under Alternative 2, and proposed bridge replacement under Alternative 4.
2. Cross section at bridge sites Alternative 2
3. Cross section at bridge site Alternative 4
4. Typical bridge section
5. Typical bridge shipping
6. Typical bridge Footing

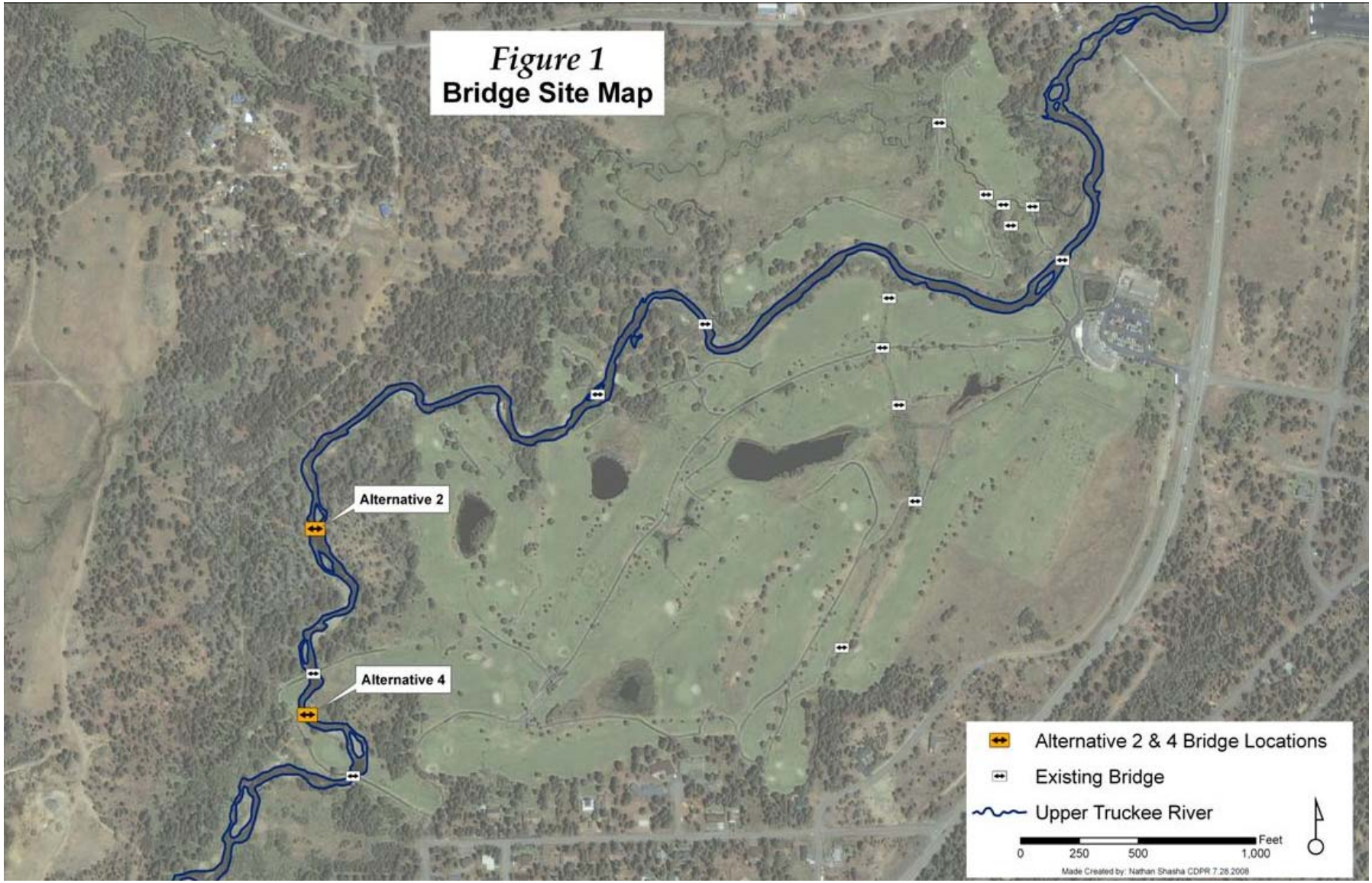
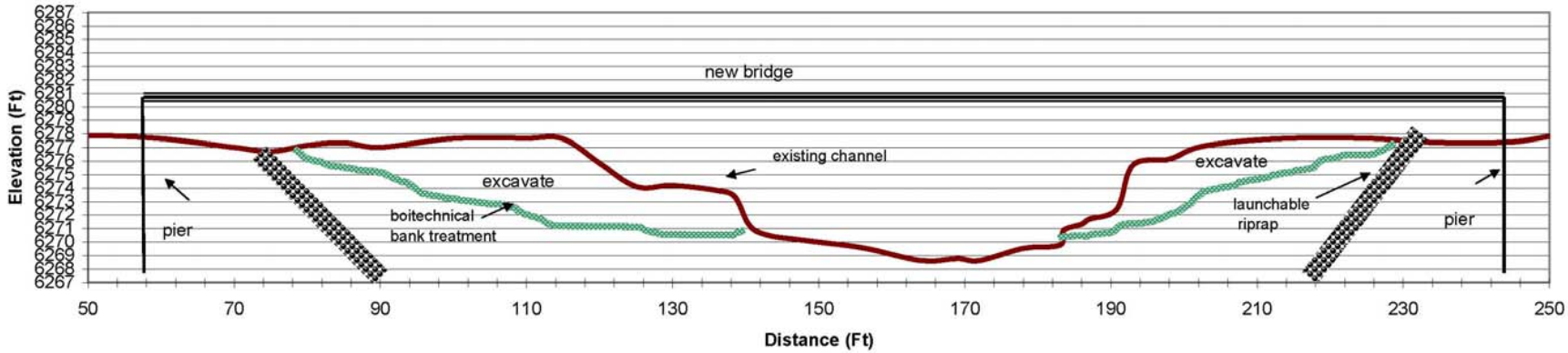
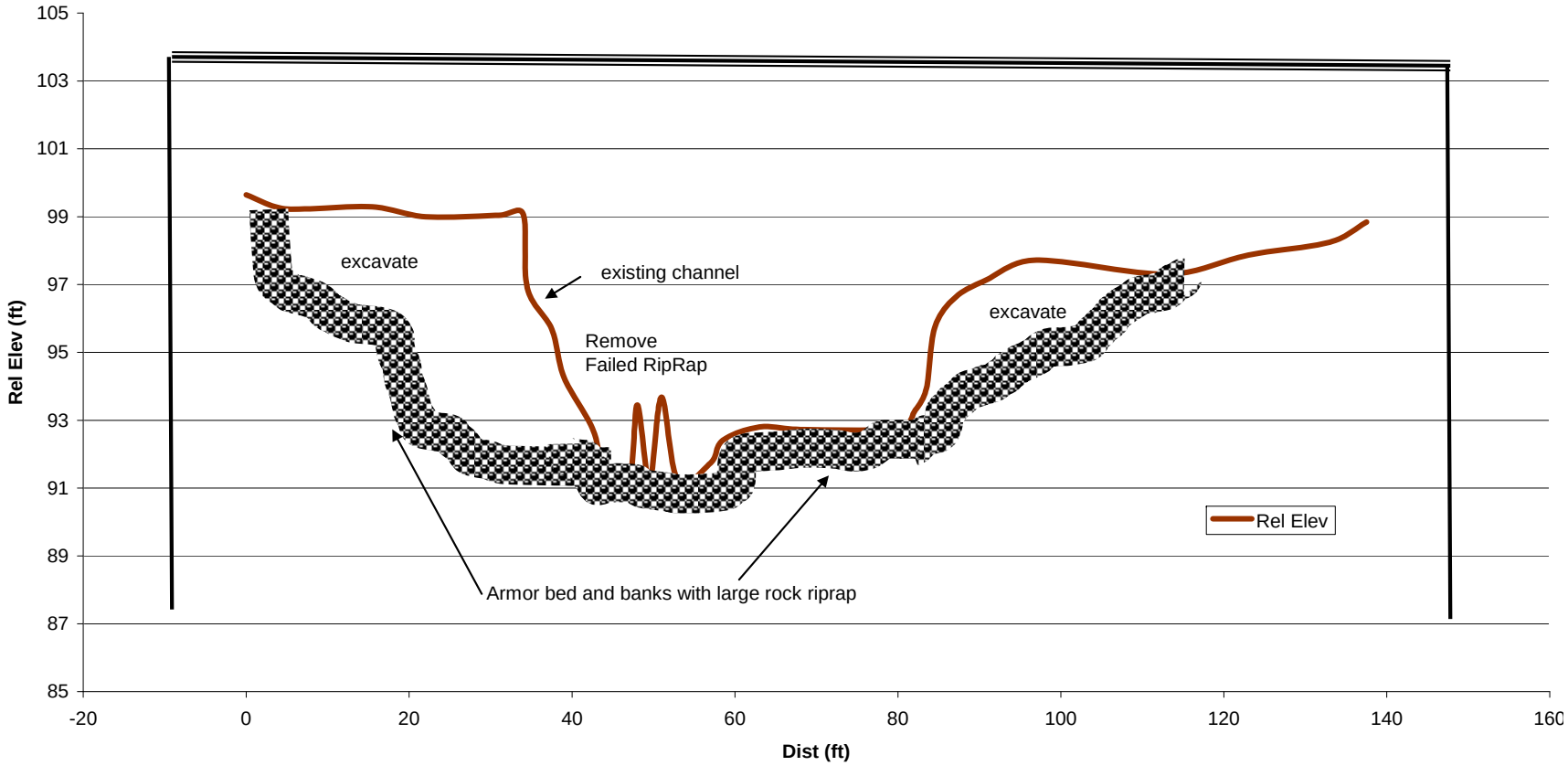


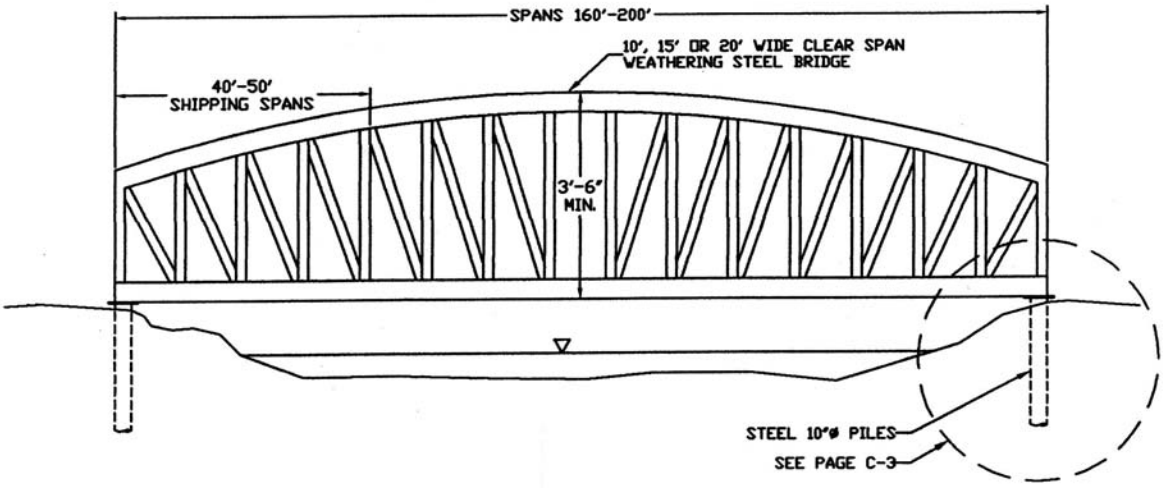
Figure 1
Bridge Site Map
Alternative 2
Alternative 4
Alternative 2 & 4 Bridge Locations
Existing Bridge
Upper Truckee River
0
250
500
1,000
Feet
Made Created by: Nathan Shasha CDPR 7.26.2008

Conceptual Bridge Under Alternative 2
Figure 2



Conceptual New Bridge Alternative 4
Figure 3



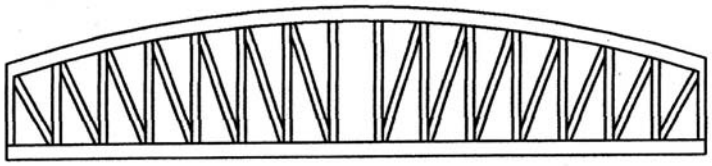


TYPICAL BRIDGE SECTION

NTS

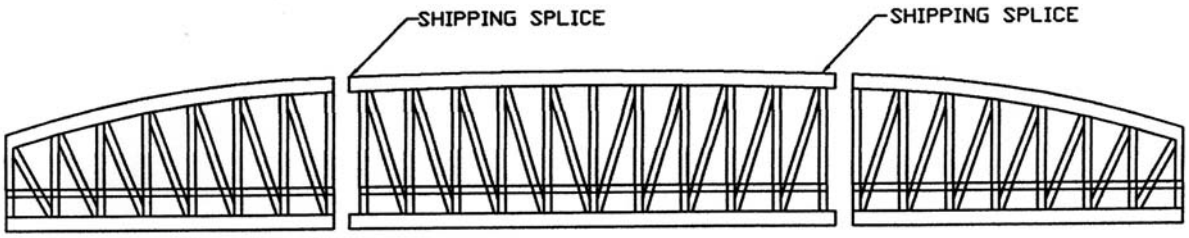
HAEN ENGINEERING P.O. BOX 11609 (530) 5414343 SOUTH LAKE TAHOE, CA. 96155 FAX (530) 5414461	LAKE TAHOE GOLF COURSE BRIDGE	SHEET C-1
	DATE: 5/12/08 | PROJECT NO.: 01-37 | BY: JFH	

Figure 4



TYPICAL 70' SPAN

NTS

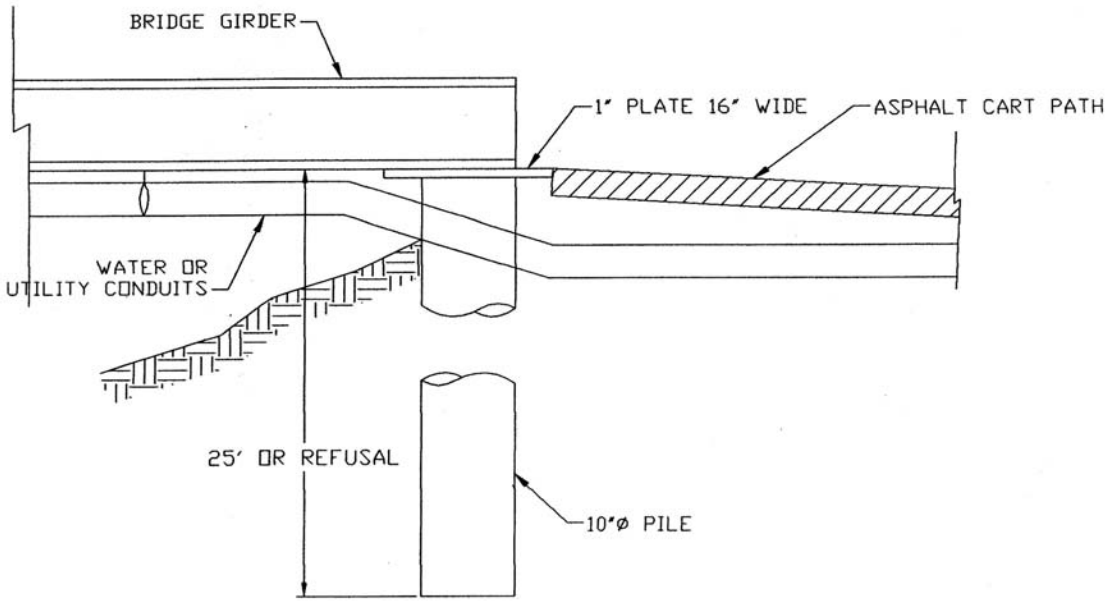


TYPICAL 160' SPAN

NTS

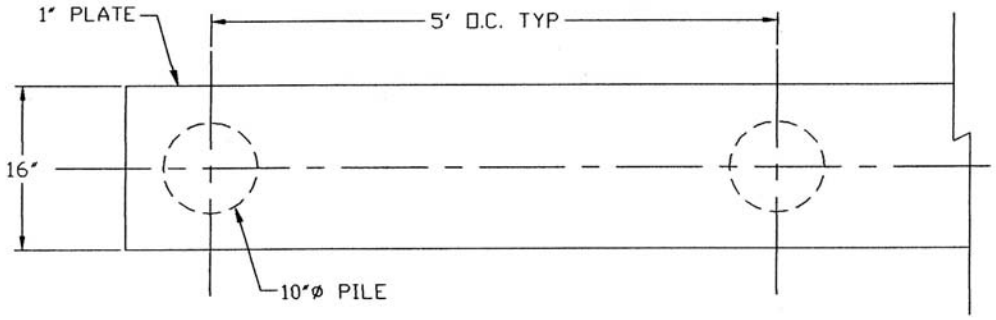
HAEN ENGINEERING P.O. BOX 11609 SOUTH LAKE TAHOE, CA. 96155 (530) 5414343 FAX (530) 5414461	LAKE TAHOE GOLF COURSE BRIDGE DATE: 5/12/08 PROJECT NO.: 01-37 BY: JFH	SHEET C-2

Figure 5



BRIDGE FOOTING

NTS



BRIDGE MOUNTING PLATE

NTS

HAEN ENGINEERING P.O. BOX 11609 SOUTH LAKE TAHOE, CA. 96155 (530) 5414343 FAX (530) 5414461	**LAKE TAHOE GOLF COURSE BRIDGE** DATE: 5/12/08 | PROJECT NO.: 01-37 | BY: JFH	SHEET **C-3**

Figure 6

APPENDIX E

Lake Tahoe Golf Course Economic Feasibility Analysis

HANSFORD ECONOMIC CONSULTING

LAKE TAHOE GOLF COURSE ECONOMIC FEASIBILITY ANALYSIS

A Report Prepared For:

The Upper Truckee River Restoration and Golf Course Reconfiguration Project

DRAFT
Environmental Impact Report (EIR) / Environmental Impact Statement (EIS)/EIS

HEC Project #60631

September 8, 2008

CONTACT INFORMATION

Lake Tahoe Golf Course Economic Feasibility Analysis

September 8, 2008

This report was prepared by Hansford Economic Consulting (HEC), under subcontract to EDAW, Inc. This report (HEC Project No. 60631) was prepared to accompany the Draft Environmental Impact Report (EIR)/Environmental Impact Statement (EIS)/EIS for the 'Upper Truckee River Restoration and Golf Course Reconfiguration Project, Lake Valley State Recreation Area and Washoe Meadows State Park, Meyers', a joint project of the Tahoe Regional Planning Agency, California State Parks, and the United States Department of the Interior, Bureau of Reclamation. EDAW, Inc. is responsible for preparation of the complete Draft EIR/EIS/EIS.

The analyses, opinions, and findings contained within this report are based on primary data provided by responsible parties, as well as additional research documents available as of the date of this report. Updates to information obtained for this report could change or invalidate the findings contained herein. The contents of this report are based, in part, on data from secondary sources. While it is believed that these sources are accurate, this is not guaranteed.

The findings presented in this report are limited to documentation necessary in the EIR/EIS/EIS process for aiding in planning decisions. This report should not be relied upon as sole input for decision-making; it should be utilized strictly for the purposes of the scope and objectives of the commissioned study.

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SECTION 1: INTRODUCTION AND SUMMARY FEASIBILITY FINDINGS

INTRODUCTION

This economic feasibility analysis for Lake Tahoe Golf Course (LTGC) is a separate companion document to the Upper Truckee River Restoration and Golf Course Reconfiguration Project (UTRGCR) environmental document. The environmental document for this project includes an Environmental Impact Report (EIR) for the California Department of Parks and Recreation (State Parks) pursuant to the California Environmental Quality Act (CEQA), an Environmental Impact Statement (EIS) for the U.S. Bureau of Reclamation (Reclamation) pursuant to the National Environmental Policy Act (NEPA), and an EIS to meet the Tahoe Regional Planning Agency (TRPA) Code of Ordinances requirements. It is described herein as an EIR/EIS/EIS or environmental document.

Objectives of the UTRGCR project that relate to the golf course include:

A. Improve the golf course layout, infrastructure, and management to reduce the environmental impact of the golf course on the river's water quality and riparian habitat by integrating environmentally-sensitive design concepts.

B. Maintain golf recreation opportunity and quality of play.

C. Maintain revenue level of the golf course to State Parks.

D. In the stream environment zone, reduce the area occupied by the golf course and improve the quality and increase the extent of riparian and meadow habitat.

The purpose of the analysis contained within this report is to study the feasibility of continued operations at Lake Valley State Recreation Area (SRA) both with and without a golf course, which may occur as a result of river restoration, in light of the objectives stated above. The analysis examines three scenarios for configurations of the golf course, as described below. It addresses the revenue and operating expenditures of each scenario, as well as the changes in revenues to be received by State Parks, changes in revenues received by the concessionaire, and economic impacts within the surrounding community (which, for purposes of this study, is the South Shore portion of the Lake Tahoe Basin).

Lake Tahoe Golf Course (LTGC)

The LTGC is on State Parks-owned property within the Lake Valley SRA. It is located in the community of Meyers just south of the City of South Lake Tahoe on the west side of U.S. Highway 50 (US 50) and State Route 89 (SR 89). The area is part of the South Shore portion of the Lake Tahoe Basin. The golf course is an 18-hole regulation-play golf course

operated by American Golf Corporation through a concession contract with State Parks. The golf course is situated on the valley floor with holes on both sides of the Upper Truckee River. The mountains of the Desolation Wilderness area of the Sierra Nevada provide a picturesque backdrop to the scenic golf course.

There are three golf course economic scenarios studied in the economic feasibility model for LTGC:

1. An 18-hole regulation golf facility (with two sub-options, one of which includes the potential changes to course layout),

2. A reduced-play area (non-traditional length) course with all golf located on the east side of the river. This scenario is modeled with a range of potential green fees resulting in a low to high range of financial projections, and

3. No golf course, but with retention of the clubhouse for an events facility.

It is important to distinguish that EIR/EIS/EIS analyses are referred to as 'Alternatives' and economic analyses are referred to as 'Scenarios'. The reason for these different labels is that more than one environmental alternative can be captured under one economic scenario. ***Table 1*** shows how the environmental alternatives correspond to the economic scenarios being examined in this report.

Table 1: Summary of Economic Scenarios

Scenario	River Restoration	Golf Course	Golf Course Layout	Snowmobiling	EIR Alternative(s)	
1A (Base Case)	NO	18-hole regulation	No change	Yes	1	No Action
1B	YES	18-hole regulation	No change / relocation of 7 or 8 holes west of river	Yes	2, 4	Stabilize in place or full river restoration
2	YES	Non-traditional (18-hole executive, 9-hole, or par 3)	All golf east of river	Yes	3	Full river restoration
3	YES	No golf course	No course; clubhouse operates as an event facility	No	5	Full river restoration

KEY FEASIBILITY FINDINGS

This report makes the following key findings and observations:

Direct LTGC Financial Impacts

Revenues and expenditures projected for each economic scenario are shown in ***Table 2***. There are four columns of results shown under Scenario 2. These columns model a range of potential number of rounds played and green fees achieved at a reduced-play area golf course. These two variables are the key drivers of financial feasibility under Scenario 2.

In summary:

- Operation of LTGC with a reconfigured 18-hole regulation course is estimated to be feasible (i.e., golf course revenue would exceed operating expenditures after making concession payments to State Parks),

- A reduced-play area course is estimated to be infeasible under all but the most optimistic of circumstances. A reduced-play area course would not meet Objectives B and C of the project regarding retention of regulation-quality play and maintenance of golf revenue.

- Operation of Lake Valley SRA clubhouse for events only is estimated to be infeasible, even if the number of events is doubled per year. Concessionaire operations would have to cease because operating expenditures would exceed revenues.

A summary of direct financial impacts, including revenues and earnings, and number of jobs caused by reconfigurations to the layout of, and changes in the operations of LTGC are shown in ***Table 3***. Estimated impacts include:

- Potential annual loss of income (rent and capital improvement program fund) to State Parks from decommissioning and removing the LTGC of $881,000.

- A reduced-play area (non-traditional length) course at LTGC is most likely financially infeasible because the concessionaire would have a negative cash flow after making payments to State Parks. If the reconfigured golf course can achieve more than 25,000 rounds annually and command green fees above the median rack rate for comparable Tahoe non-traditional length facilities, it may be financially feasible; however, the concessionaire's net revenues would be marginal, making the golf course susceptible to closure.

Table 2: Estimated Revenues and Expenditures by Scenario

Lake Tahoe Golf Course Economic Feasibility Analysis
Summary LTGC Revenues and Expenditures by Economic Scenario

	Scenario 1		Scenario 2 (Low Rounds)		Scenario 2 (High Rounds)		
Revenue or Expense	1A - Base Case [1]	1B	Low Fees	High Fees	Low Fees	High Fees	Scenario 3
Estimated Revenues	$2,789,000	$2,809,000	$1,027,000	$1,128,000	$1,530,000	$1,698,000	$256,000
Scenario 3 Potential Event Revenues							$131,000
Total Estimated Revenues	**$2,789,000**	**$2,809,000**	**$1,027,000**	**$1,128,000**	**$1,530,000**	**$1,698,000**	**$387,000**
Estimated Expenditures	$1,294,000	$1,333,000	$965,000	$965,000	$1,069,000	$1,069,000	$461,000
Revenues less Expenditures	**$1,495,000**	**$1,476,000**	**$62,000**	**$163,000**	**$461,000**	**$629,000**	**($74,000)**
Payments to State Parks (Rent and CIP) [2]	$881,000	$887,000	$324,000	$356,000	$484,000	$536,000	[3]
Net Concessionaire Revenues	**$614,000**	**$589,000**	**($262,000)**	**($193,000)**	**($23,000)**	**$93,000**	**($74,000)**

Source: Hansford Economic Consulting ltgc sum

[1] Base Case data uses average of years 2003 - 2006.
[2] Base Case payments to State Parks differs from Table 6 due to the discontinuation of the Nike Learning Center.
[3] With projected negative financial returns the concessionaire would cease operations. This result would be exacerbated by increased expenditures associated with increased events, which is not reflected in this table.

Table 3: Summary of Direct LTGC Economic Impacts by Scenario

Lake Tahoe Golf Course Economic Feasibility Analysis
Summary of Direct LTGC Economic Impacts by Scenario

Direct Impact	Net Revenues 1A - Base Case	Scenario 1 1B	Scenario 2 (Low Rounds) Low Fees	Scenario 2 (Low Rounds) High Fees	Scenario 2 (High Rounds) Low Fees	Scenario 2 (High Rounds) High Fees	Scenario 3	
California State Parks								
State Park Net Revenues [1]	$881,000	$887,000	$324,000	$356,000	$484,000	$536,000		[2]
Income Impact to State Parks		**$6,000**	**($557,000)**	**($525,000)**	**($397,000)**	**($345,000)**		**($881,000)**
Golf Course Concessionaire								
Concessionaire Net Revenues	$614,000	$589,000	($262,000)	($193,000)	($23,000)	$93,000		[2]
Income Impact to Concessionaire		**($25,000)**	**($876,000)**	**($807,000)**	**($637,000)**	**($521,000)**		**($614,000)**
Golf Course Employee Earnings and Jobs								
LTGC Earnings	$612,500	$650,200	$494,600	$494,600	$531,200	$531,200		[2]
Earnings Impact to Employees		**$37,700**	**($117,900)**	**($117,900)**	**($81,300)**	**($81,300)**		**($612,500)**
LTGC Jobs	76	80	60	60	65	65		[2]
Jobs Impact [3]		**4**	**-16**	**-16**	**-11**	**-11**		**-76**

Source: Hansford Economic Consulting net summ

[1] Rent from concessionaire plus 5% capital improvement fund program.
[2] With projected negative financial returns the concessionaire would cease operations.
[3] Excludes 2 - 3 jobs associated with snowmobile operations.

- A well-designed reconfigured 18-hole regulation course that takes maximum advantage of the terrain and vistas is projected to have financial performance similar to that currently experienced at LTGC. Because revenues are projected to increase slightly over the Base Case, State Parks may receive a slight increase in revenues with a reconfigured 18-hole regulation course. Impact to the golf course concessionaire is estimated to be a decrease of approximately $25,000 annually because expenses associated primarily with labor are estimated to increase.

- No financial impact is estimated for winter operations (i.e., snowmobile rides on a circuit course around the driving range) with changes to the golf course under Scenarios 1B and 2. Operations are anticipated to cease if Lake Valley SRA becomes a State managed and operated site with no golf course. Snowmobiling revenues and costs are variable, primarily a function of the weather (snowfall), and are minor compared to golf course revenue.

- Earnings by employees at LTGC are estimated to increase $37,700 per year with a reconfigured 18-hole regulation course, and decrease approximately $81,300 to $117,900 per year with a reduced-play area (non-traditional length) course. Earnings impacts from potential cessation of snowmobile ride operations are not estimated in this study. Earnings impacts of the snowmobile ride operations would be minor compared to the earnings impacts of changes in golf operations.

Additional Direct Impacts to the South Shore Economy

Additional direct impacts to the South Shore economy accrue from spending by LTGC visitors within the local economy generating additional sales tax, transient occupancy tax, and property taxes. Other impacts include additional jobs that are created in support of these visitors, and associated earnings. A summary of impacts to the South Shore economy, including job impacts outside of LTGC, are shown in ***Table 4***.

The following findings are made:

- Total additional LTGC revenues and taxes benefiting the local economy are estimated at $6.1 million annually. These revenues would be lost if the golf course closed, and reduced to between approximately $3.5 million and $5.2 million with a reduced-play area (non-traditional length) course. Reconfiguration of the 18-hole regulation course may increase these revenues slightly, but not significantly.

- Earnings by employees generated elsewhere in South Shore by visitors to LTGC are estimated to decrease by $287,000 to $880,000 annually with a reduced-play area (non-traditional length) course, and $2.0 million with no golf course.

Table 4: Summary of South Shore Economy Impacts by Scenario

Lake Tahoe Golf Course Economic Feasibility Analysis
Summary of South Shore Economy Impacts by Scenario

Direct Impact	Net Revenues 1A - Base Case	Scenario 1 1B	Scenario 2 Low Rounds	Scenario 2 High Rounds	Scenario 3
Revenues and Taxes					
Visitor Spending [1]	$5,568,080	$5,554,412	$3,181,167	$4,807,897	[4]
Impact of Visitor Spending		**($13,668)**	**($2,386,913)**	**($760,183)**	**($5,568,080)**
Sales Taxes Generated	$271,000	$273,000	$147,000	$216,000	[4]
Impact on Sales Tax [2]		**$2,000**	**($124,000)**	**($55,000)**	**($271,000)**
Transient Occupancy Tax Generated	$157,000	$157,000	$82,000	$123,000	[4]
Impact on Transient Occupancy Tax		**$0**	**($75,000)**	**($34,000)**	**($157,000)**
Property Tax Generated	$65,000	$65,000	$65,000	$65,000	[4]
Impact on Property Tax [3]		**$0**	**$0**	**$0**	**($65,000)**
Total Additional South Shore Revenues & Taxes	**$6,061,080**	**$6,049,412**	**$3,475,167**	**$5,211,897**	[4]
Impact to South Shore Revenues & Taxes		**($11,668)**	**($2,585,913)**	**($849,183)**	**($6,061,080)**
Employee Earnings and Jobs					
South Shore Employee Earnings	$2,053,633	$2,048,592	$1,173,286	$1,765,961	[4]
Impact to South Shore Employee Earnings [1]		**($5,041)**	**($880,347)**	**($287,672)**	**($2,053,633)**
Jobs in South Shore	92	92	53	74	0
Jobs Impact to South Shore [1]		**0**	**-39**	**-18**	**-92**

Source: Hansford Economic Consulting economy

[1] Excludes direct impacts at LTGC shown in Table 3.
[2] Includes spending at LTGC.
[3] Property tax generated by LTGC.
[4] With projected negative financial returns the concessionaire would cease operations.

- The closure of the golf course at Lake Valley SRA would result in the loss of approximately 168 full and part-time jobs (76 at LTGC and 92 elsewhere). Closure of winter operations would result in the loss of approximately 3 jobs.

- If LTGC was reduced in length of play, as in Scenario 2, 29 to 55 jobs (11 to 16 of which at LTGC) would be removed from the local economy. Reconfiguration of the 18-hole regulation course may result in 4 additional jobs at LTGC.

Observations Relevant to the Future of LTGC

- The feasibility of LTGC is heavily affected by national leisure trends and the national and regional economy. Approximately two-thirds of rounds played are estimated to be made by visitors to the area. Of the estimated 22,219 rounds played by visitors, 8,942 rounds are estimated to be made by visitors with the specific purpose of visiting the Tahoe Basin to play golf at LTGC.

- Population growth and participation rates for golf both regionally and nationally will affect demand for golf at LTGC, because players are primarily from out of the region.

- Although the local population only plays about one-third of the golf rounds at LTGC, they may be described as 'avid' or 'core' golfers, and are important contributors to early and late season spending at LTGC.

- Reduced-play area courses already exist within a 60-minute drive of South Lake Tahoe; however, there are no public par-3 / pitch and putt courses. The net revenues estimated for each scenario in this study indicate that a reduced-play area (non-traditional length) course is financially infeasible. An increased number of events held at the clubhouse could potentially enhance the revenue stream of a reduced-play area (non-traditional length) golf course; this analysis was not undertaken as part of the study.

- An increase in food and beverage sales in recent years indicates potential to expand facilities for events in the future; however, comparison with data from the North Tahoe Conference Center indicates that even with a doubling of the number of events currently held at LTGC, a no-golf scenario is financially infeasible.

- LTGC is the most affordable golf course for 18-hole regulation play in the region. The maximum allowables fees are controlled by State Parks. Because the majority of players are visitors who have already allocated leisure time to recreate, and because the local golfers are unlikely to be able to play twice as much even if the price is halved, demand at LTGC is likely to fairly price inelastic, meaning a

moderate price increase would not greatly decrease demand for play, and vice-versa, a moderate price decrease would not greatly increase rounds played.

- A recent trend of declining number of rounds played at LTGC is partly a function of increased competition, most particularly from the golf courses located at the base of the mountains in Nevada, and decreased visitation to the area as evidenced by increased vacancy rates at hotels, motels and vacation rentals, as described in other economic studies for South Lake Tahoe. Occasional fluctuations in number of rounds (as opposed to a trend) are more likely attributable to the advent and departure of playable weather, which influences the length of the playing season.

- Personal income is a major determinant of rounds played at LTGC since the majority of players are visitors whose total trip costs are largely spent on transportation costs. The increased number of baby boomers reaching retirement age is projected to increase rounds played nationally in the near future, but it is not necessarily helpful to LTGC because retired persons tend to have more fixed incomes.

Report Organization

Section 2 provides project overview, description of the management and operations structure at Lake Valley SRA, and approach to the study. ***Section 3*** describes the methodology used to estimate financial impacts to State Parks and American Golf Corporation (the concessionaire). ***Section 4*** is a competitive market analysis of factors that affect demand for rounds and pricing at the golf course. The analysis accounts for relevant national and regional golf statistics and their relationship to this project as well as key information from local competitive golf courses. Detailed estimates of financial impacts to State Parks and its concessionaires of a reconfigured golf course, and no golf scenarios associated with the river restoration alternatives are presented in ***Section 5***. The final section of this report, ***Section 6,*** provides detailed estimates of direct economic impacts to the South Shore economy generated by LTGC.

Appendix A presents tables of LTGC performance and rent to State Parks since 1995 that support the analysis. ***Appendix B*** provides a copy of the questionnaire and summary interviewee comments from surveys conducted by State Parks at LTGC during the 2007 golf season. ***Appendix C*** contains descriptions of competitor golf courses. ***Appendix D*** includes detailed estimates of LTGC's economic impacts on the South Shore for each scenario modeled.

SECTION 2: PROJECT OVERVIEW AND STUDY APPROACH

PROJECT OVERVIEW

As part of the EIR/EIS/EIS process to restore the Upper Truckee River, various restoration alternatives are evaluated for their environmental and economic impacts. The river restoration and golf course reconfiguration alternatives have been determined based on input from stakeholders and the public. The economic analysis of these alternatives is provided in this report as input to the EIR/EIS/EIS process. Three economic scenarios were modeled, as shown in ***Table 1***.

Structure of Lake Valley SRA Management and Operations

LTGC was owned and operated by a private enterprise from 1962 until it was purchased by California State Parks in 1985 (California State Parks, July 1, 2006). A General Plan for Lake Valley SRA was prepared that still governs the management of the area today. The declaration of purpose for Lake Valley SRA (California State Parks) is as follows:

"The purpose of Lake Valley State Recreation Area is to make available to the people for their enjoyment and inspiration the 18-hole golf course, and the scenic Upper Truckee River and its environs."

The General Plan calls for State Parks to:

- Balance the objectives of providing optimum recreational opportunities and maintaining the highest standards of environmental protection.

- Define and execute a program of management that perpetuates established values for Lake Valley SRA, providing for golfing along with other compatible summer and winter recreation opportunities while restoring the natural character and ecological values of the Upper Truckee River, protecting its water quality, and protecting and interpreting significant natural, cultural, and scientific values.

Since 1989 the golf course has been operated by American Golf Corporation under a concessionaire contract with State Parks. The clubhouse and maintenance structures, approximately 7,000 square feet and 2,000 square feet respectively were built under American Golf Corporation's guidance and opened in 1992.

In keeping with the General Plan, the concessionaire contract (State of California, 1989, amended 1995) explicitly states that, "Of prime importance under this contract is the requirement to balance the dual objectives of providing a quality golfing experience and

protecting the ecologically sensitive Upper Truckee River and the natural environment of Lake Valley State Recreation Area."

A key consideration of State Parks with regards to the operation of the golf course is affordability. Per Section 7 of the concessionaire contact, "It is the intent of the State under this contract to provide the general public with the opportunity to enjoy quality golfing and winter recreational opportunities at reasonable and affordable prices. Service to the public, with goods, merchandise, and services of the best quality and at reasonable charges, is of prime concern to the State……"

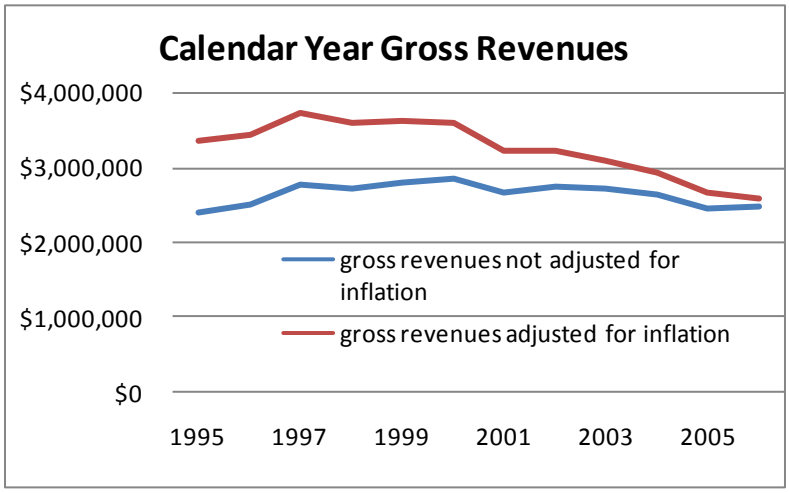
Under terms of the concession contract, amended in 1995, a maximum green fee of $40.00 was considered by the State to be fair and reasonable. Increases to this green fee benchmark are made based on changes in the California Consumer Price Index, or other extraordinary circumstances justified by the concessionaire and approved by the State.

Telephone interviews were conducted with State Parks personnel to provide perspective on the impact of LTGC revenues on the State Parks system. Revenues generated by LTGC are very important to State Parks. The revenue of LTGC operations is the fifth largest source of concession revenue in the State Parks system (California State Parks, Fiscal Year 2006/07). The Sierra District of State Parks uses a combination of concession revenues, user fees, and other revenue sources allocated by State Parks to support District operations.

Historic Financial Performance of LTGC

In real terms (i.e., using constant 2007 dollars), LTGC has experienced declining gross revenues since 1997, as charted in ***Figure 1***.

Figure 1: LTGC Gross Revenues by Calendar Year, 1995 – 2006



One of the reasons for this decline is the terms of the concession contract which restricts pricing to what is considered fair and reasonable by State Parks. American Golf Corporation has also noted that the number of rounds played has declined, which they attribute primarily to increased supply of golf courses (competition) both regionally and nationally and a national decline in golf demand. A small portion of declining gross revenues from golf operations has been made up by increased revenues from events held at the clubhouse. Gross revenues with and without inflation adjustments are detailed in ***Table 5.***

Payments to State Parks

American Golf Corporation signed a 20-year concessionaire contract with State Parks in 1989 which is due to expire March 31 2009. Per the terms of the agreement, American Golf Corporation must allocate 5% of gross annual receipts to a Capital Improvements Program (CIP) fund, which is interest-bearing and administered by the concessionaire for capital improvements or resource management projects with direction by and approval of the State[1].

Monthly rents are calculated based on gross revenues; either 29% of monthly gross receipts or minimum monthly rents of $22,690 April through September and 10% of winter operations gross receipts or $4,538 October through March, whichever is greater.

The minimum monthly rental amounts are adjusted every 5 years to reflect changes in the California Consumer Price Index. 'Gross receipts' refers to all monies, property, or any other thing of value received by the concessionaire and any sub-concessionaire from any business carried upon the premises. It excludes sales taxes. Payments to State Parks since 1995 are also shown in ***Table 5***.

The percentage distribution of gross revenues generated by operations at LTGC by month is illustrated in ***Figure 2.*** Over 80% of annual gross revenues are from golf during the months of June through September.

Weather and other factors can cause annual fluctuations in revenues. Data in 2007 were not used for this report because of the Angora fire, a large wildfire near LTGC that severely affected businesses in South Shore. The drop in golf rounds due to that fire would skew analysis performed in this study by pulling revenues artificially down. ***Figure 3*** charts gross revenues generated by summer and winter operations by year since 1995. Winter operations include snowmobile sublease payments and event revenues.

Golf operations revenues have been relatively stable in recent years; however, the golf course has not recovered from a particularly poor performance in 2001 (this coincides with decreased lodging occupancy rates in South Shore – see ***Section 3*** of this report).

[1] The State may elect to receive all or part of the CIP funds, including accrued interest, as additional rent.

Table 5: LTGC Gross Revenues by Calendar Year

Item	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
LTGC Financial Performance												
LTGC Gross Revenues	$2,409,221	$2,525,072	$2,784,177	$2,736,221	$2,802,109	$2,858,313	$2,661,577	$2,756,513	$2,715,472	$2,640,030	$2,461,838	$2,488,888
Payments to State Parks	$549,533	$630,013	$693,364	$681,347	$699,320	$715,947	$664,372	$672,907	$790,306	$702,068	$616,188	$626,552
CIP Fund	$120,461	$126,254	$139,209	$136,811	$140,105	$142,916	$133,079	$137,826	$135,774	$132,002	$123,092	$124,444
LTGC Financial Performance in 2007 Dollars												
LTGC Gross Revenues	$3,341,027	$3,442,972	$3,723,836	$3,588,863	$3,614,650	$3,582,583	$3,218,909	$3,207,780	$3,084,108	$2,920,120	$2,649,506	$2,582,905
Payments to State Parks	$762,074	$859,032	$927,375	$893,664	$902,105	$897,362	$803,490	$783,068	$897,593	$776,553	$663,160	$650,219
CIP Fund	$167,051	$172,149	$186,192	$179,443	$180,732	$179,129	$160,945	$160,389	$154,205	$146,006	$132,475	$129,145
Percent Change in Gross Revenues (2007 Dollars)												
Annual % change [1]		3.1%	8.2%	-3.6%	0.7%	-0.9%	-10.2%	-0.3%	-3.9%	-5.3%	-9.3%	-2.5%

Source: California State Parks

[1] Percentage increase or decrease in Gross Revenues from year to year.
[2] Average annual percentage change in Gross Revenues over the period.

	Average Annual Revenues (2007 $s)	
	1995 - 2006	**2003 -2006**
LTGC Gross Revenues	**$3,246,438**	**$2,809,160**
Payments to State Parks	**$817,975**	**$746,882**
CIP Fund	**$162,322**	**$140,458**
Annual % Change [2]	**-2.3%**	**-5.7%**

year sum

It is not known why a 13% decrease in revenues between 2000 and 2001 occurred (speculation about an influence of the 9/11 attack may or may not be well founded, because its immediate economic effects occurred after the peak summer period). Due to early snow fall, 2005 also saw a significant drop in revenues from 2004, with a decrease of 10% (almost $300,000) in revenues. Annual revenue changes are shown in ***Table 6***. Support tables for LTGC's historic financial performance are presented in ***Appendix A*** of this report.

Figure 2: Concessionaire Percent of Annual Gross Revenues by Month

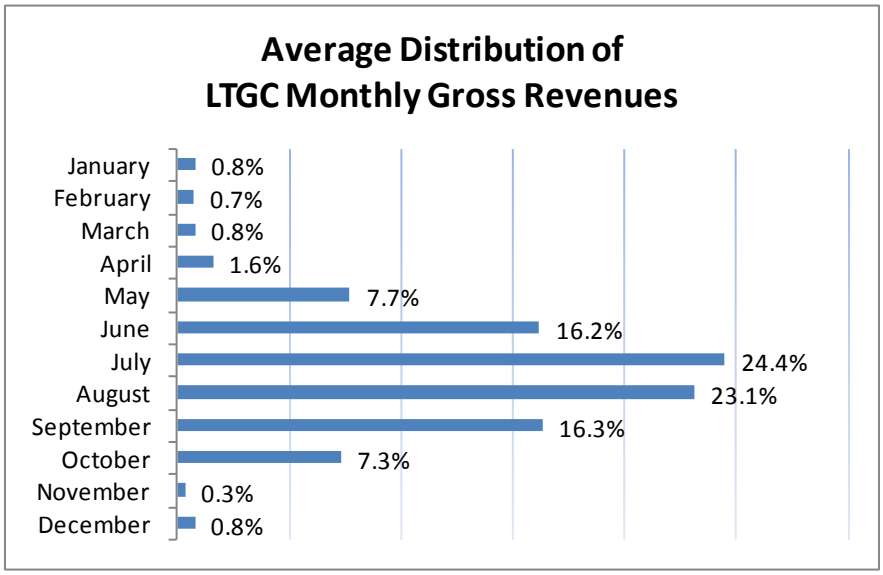


Figure 3: Winter and Summer Operations Gross Revenues, 1995 - 2006

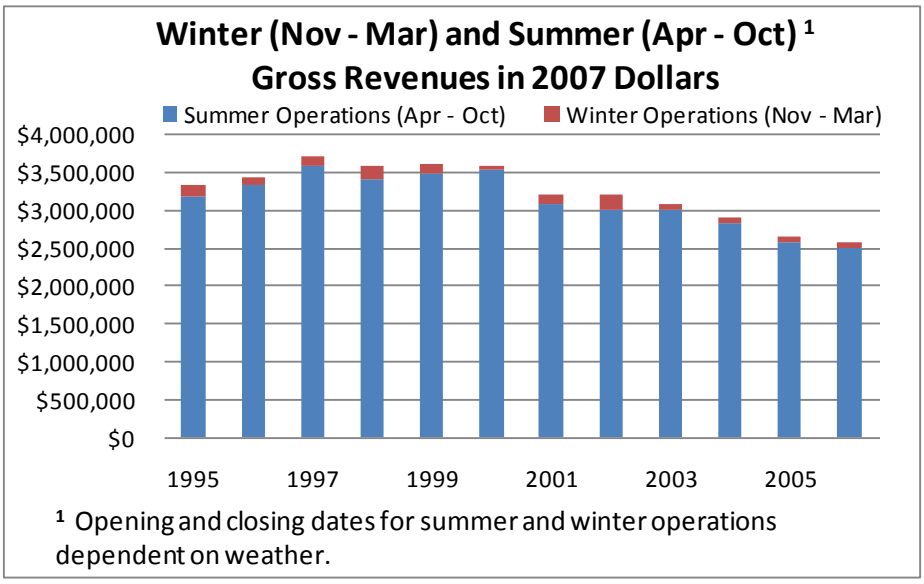


Table 6: LTGC Gross Revenue and Rent to State Parks in 2007 Dollars

Lake Tahoe Golf Course Economic Feasibility Analysis
Calendar Year LTGC Gross Revenue and Rent to State Parks Adjusted for Inflation (in 2007 Dollars)

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Item	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Average 2003 - 2006
Calendar Year Revenues in 2007 Dollars													
Summer Operations (April through October) [1]													
Gross Revenues [2]	**$3,183,842**	**$3,343,859**	**$3,593,044**	**$3,419,406**	**$3,490,079**	**$3,554,281**	**$3,085,972**	**$3,017,692**	**$3,025,239**	**$2,842,738**	**$2,572,360**	**$2,508,163**	**$2,737,125**
Annual Change in Revenues		$160,017	$249,186	($173,639)	$70,673	$64,202	($468,309)	($68,280)	$7,547	($182,501)	($270,378)	($64,197)	
Annual Percent Change		5%	7%	-5%	2%	2%	-13%	-2%	0%	-6%	-10%	-2%	
Winter Operations (November through March) [1]													
Gross Revenues [3]	**$157,185**	**$99,114**	**$130,792**	**$169,457**	**$124,571**	**$28,302**	**$132,937**	**$190,088**	**$58,869**	**$77,382**	**$77,145**	**$74,742**	**$72,035**
Annual Change in Revenues		($58,072)	$31,678	$38,665	($44,886)	($96,269)	$104,635	$57,151	($131,218)	$18,513	($237)	($2,404)	
Annual Percent Change		-37%	32%	30%	-26%	-77%	370%	43%	-69%	31%	0%	-3%	
Gross Revenues by Calendar Year	**$3,341,027**	**$3,442,972**	**$3,723,836**	**$3,588,863**	**$3,614,650**	**$3,582,583**	**$3,218,909**	**$3,207,780**	**$3,084,108**	**$2,920,120**	**$2,649,506**	**$2,582,905**	**$2,809,160**
Payments to State Parks													
Capital Improvement Projects Fund	$167,051	$172,149	$186,192	$179,443	$180,732	$179,129	$160,945	$160,389	$154,205	$146,006	$132,475	$129,145	**$140,458**
Percent of Gross Revenues	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*	*5%*	***5%***
Rent to State Parks	$762,074	$859,032	$927,375	$893,664	$902,105	$897,362	$803,490	$783,068	$897,593	$776,553	$663,160	$650,219	**$746,882**
Percent of Gross Revenues	*23%*	*25%*	*25%*	*25%*	*25%*	*25%*	*25%*	*24%*	*29%*	*27%*	*25%*	*25%*	***27%***
Total Payments to State Parks	**$929,125**	**$1,031,180**	**$1,113,567**	**$1,073,107**	**$1,082,837**	**$1,076,491**	**$964,436**	**$943,457**	**$1,051,799**	**$922,559**	**$795,636**	**$779,365**	**$887,339**

Source: California State Parks

season rents

[1] Start and close dates of summer and winter operations are dependent on weather.
[2] Summer operations gross revenues includes golf course operation revenues plus event revenues.
[3] Winter operations gross revenues includes all golf course concessionaire revenues from snowmobile operations sublease payments and event revenues.

FEASIBILITY ANALYSIS APPROACH

The purpose of golf course feasibility studies is to analyze major factors affecting the feasibility of a course by reviewing elements influencing demand, which include:

- Market area population and growth potential (demographic trends),
- Price of a round of golf,
- Income of players,
- Number of, and pricing of existing and planned courses in the area,
- Consumer tastes and preferences,
- Consumer time available for leisure, and
- Transportation costs to the golf course.

The feasibility of a reconfigured golf course includes the quality and condition of the modified course, amenities offered, and competing golf courses. This study examines these factors with the knowledge that LTGC is an established and popular golf course.

Economic Scenarios Modeled in this Study

This study models revenues and expenditures using the most recent data available from the golf course concessionaire, as well as data provided by State Parks and other pertinent sources. The three economic scenarios analyzed in this report (see ***Table 1***) are described in more detail below.

Scenario 1

Under Scenario 1 LTGC remains an 18-hole regulation golf facility. The definition of a regulation golf course is (www.golf2020.com):

"any nine-hole or 18-hole golf course that includes a variety of par-three, par-four and par-five holes, and is of traditional length and par; a nine-hole facility must be at least 2,600 yards in length and at least par 33, and an 18-hole facility at least 5,200 yards in length and at least par 66".[2]

This scenario has two versions:

- Scenario 1A is the 'Base Case' under which there is no change to the golf course layout and no river restoration (No Action Alternative in the EIR/EIS/EIS). The Base Case scenario portrays the current feasibility of LTGC.

[2] Some definitions of alternative golf courses also include driving ranges.

- Scenario 1B has river restoration, which may be either stabilize in place (Alternative 4 of the EIR/EIS/EIS), or full geomorphic and ecological restoration (Alternative 2 of the EIR/EIS/EIS or off-site relocation). The golf course layout would remain as it currently is under the 'stabilize in place' form of river management, but under the full geomorphic and ecological restoration alternative 7 or 8 holes would be reconfigured and placed on the west side of the river. Potential alternative locations for the golf course are also being reviewed in the EIR/EIS/EIS: for this report it is assumed that the economics would be the same as under Scenario 1B. Total yardage of the golf course under Scenario 1B would remain similar to or the same as the Base Case.

Scenario 2

Under Scenario 2 LTGC becomes a reduced-play area (non-traditional length) golf facility, which may be an alternative (par-3, short-fairway, pitch and putt) or 9-hole regulation golf facility. Alternative-length golf courses include (www.golf2020.com):

- **Par-three Courses -** consisting exclusively of par-three holes averaging at least 100 yards in length;

- **Executive Courses –** short-fairway courses with a variety of par-three, par-four and/or par-five holes. Eighteen-hole executive courses are 5,200 yards in length or less, with a par of 65 or less; 9-hole executive courses are par 33 or less. The only physical difference between an executive golf course and a full-sized course is the length of fairways. Tees, greens, sand traps, water hazards, and mounds are identical in size, shape, and appearance to 18-hole regulation courses (Hurdzan, 1996).

- **Pitch and Putt Courses -** short par-three courses where the holes average less than 100 yards in length.

- **Courses of Nontraditional Hole Configuration -** the holes are of traditional length in something other than a nine or 18-hole configuration.

Because course layout under Scenario 2 is not yet determined, this report does not specify which type of alternative golf facility or 9-hole regulation course would be constructed.

Scenario 3

There is no golf course under Scenario 3; however, the clubhouse is proposed to remain as an events facility. Without a driving range to use for winter activities (snowmobile operations), these are not expected to continue. Included in the analysis for this scenario is potential additional revenue from increased number of events at the clubhouse. This scenario is comparable to Alternative 5 in the EIR/EIS/EIS.

METHODOLOGY

There are two separate methodologies employed to estimate the financial and other economic impacts reported in this study. These are:

1. **Financial Analysis**

   Step 1: Establish the base data used as a platform on which to project revenues and expenditures under each economic scenario. See ***Section 3*** for description of this step.

   Step 2: Establish general assumptions to be used for projections. General assumptions used in this second step of the analysis are based on findings of the competitive market analysis provided in ***Section 4***.

   Step 3: Determine revenue and expense multipliers for revenue and cost line items. Using the base data and developed multipliers, estimate projections of revenues and expenses under each scenario, as detailed in ***Section 5***.

2. **Economic Impacts to South Shore**
   Estimate annual visitation to LTGC and utilize available direct spending data from secondary sources to estimate additional economic benefits of LTGC-generated visitation to the South Shore economy. This methodology and results of the analysis are presented in ***Section 6***.

SECTION 3: BASE DATA

In this section of the report the base data used to estimate potential revenues and expenses of the modified 18-hole course, reduced-play area (non-traditional length) course, and no golf course economic scenarios are described.

The goal of this study is to project revenues and expenses under each economic scenario based on an average year, thereby accounting for good and poor years of financial performance. The base data used in this analysis is the average of years 2003 – 2006 because:

1. Revenues "bounce" from year to year, largely due to course conditions resulting from weather and other outside influences (for example, the Angora fire, which severely skews 2007 statistics negating their use in the study). Using the most recent five-year period allows for revenue fluctuation due to variations in weather and corresponding annually changing number of rounds played.

2. LTGC is particularly susceptible to swings in annual revenue per round due to its reliance on visitor golfers (i.e., golfers not originating from South Shore). Factors affecting the numbers of visitors that are outside of LTGC's control include, among others, travel costs and the attractiveness / competitiveness of the South Shore with other destinations for visitors. Increased travel costs, particularly for gasoline, may also reduce the number of visitors and golfers to the area. Improvement of South Shore's appeal to tourists can greatly improve LTGC's financial performance. Since it is impossible to project these types of factors with any accuracy, this analysis relies on the most recent 5-year historical financial performance of the golf course (with the omission of 2007 data which is invalid for the study's purpose).

FACILITY USE

The golf course concessionaire provided the facility use data for calendar years 2003 through 2006 as shown in ***Table 7***. (Data from 2007 were not used to contribute to the Base Case, because of the anomalous demand dampening influence of the Angora fire). Over this time period, LTGC averaged generation of 76 full and part-time jobs, the majority of which for food and beverage activities, and 27,864 regular rounds and 5,299 tournament rounds, for a total of 33,163 rounds. An annual average of 37 events were held generating visitation by 3,663 wedding and banquet guests.

The facility use data shows a trend of declining number of rounds played over the four-year period. This trend is in line with recent analysis of visitor lodging data conducted for the City of South Lake Tahoe (RRC Associates, 2006) which observed that the average annual

occupancy rate of hotels, motels and vacation rentals has declined significantly since 2000, slipping from 43 percent to 29 percent. Length of season of play can cause number of rounds to fluctuate periodically, but is not cause for the trend in declining number of rounds. LTGC facility use data also shows increased visitation by non-golfers corresponding to an increased number of events held at the clubhouse.

REVENUES

Revenues for the 2003 through 2006 time period are used as the basis upon which to project long-term revenues generated under each economic scenario and are shown in ***Table 8***. All figures are shown in 2007 dollars. Revenues are broken down by the various revenue-generating categories:

- green fees,
- carts,
- driving range,
- merchandise,
- food and beverage (both golf-related and events-related), and
- other.

The average revenues in 2007 dollars are $2,012,000 for golf activities, $780,000 for concessions and other activities, and $17,000 for snowmobile sublease payments for a total of $2,809,000. Total revenue by year matches the historical data given earlier in ***Table 5***. Seventy two percent of total annual revenues are generated by golf activities, 28% by concessions and other activities (which include merchandise and food and beverage sales by golf-related activities), and 1% by snowmobile sublease payments. Total revenues are approximately $85 per round (with golf operations-only revenues $61 per round).

According the National Golf Foundation (NGF), in 2001 the average 18-hole daily fee golf course in Region 9 (covering the Tahoe area, and Northern California to Washington State) recorded 35,000 rounds per year, employed a total of 34 full and part-time employees and generated about $1,249,000 in revenues, (National Golf Foundation, 2001). This data compared to the facility use and revenue data affirms that LTGC is a competitive course, and employs more persons than the average course (although the majority of these are minimum wage jobs associated with food and beverage for events).

Table 7: Base Data – Annual Facility Use

Assumptions	Calendar Year 2003	2004	2005	2006	Existing Average	Percent of Average
Number of employees						
Pro Shop				11	11	14%
Carts				7	7	9%
Maintenance				24	24	32%
Food & Beverage				31	31	41%
Administration				3	3	4%
Subtotal Number of Employees				76	76	100%
Number of golf rounds played						
Regular Rounds	27,430	29,001	26,615	28,411	27,864	84%
Tournament Rounds	7,279	5,007	4,467	4,442	5,299	16%
Subtotal Number of Rounds	34,709	34,008	31,082	32,853	33,163	100%
Events						
Number of Weddings	28	28	32	28	29	78%
Number of Banquets	5	10	7	11	8	22%
Total Number of Events	33	38	39	39	37	100%
Guests						
Guests at Weddings	2,920	2,780	3,727	2,935	3,091	84%
Guests at Banquets	410	611	389	880	573	16%
Total Guests at Events	3,330	3,391	4,116	3,815	3,663	100%

Source: American Golf Corporation and Hansford Economic Consulting gen

LTGC's driving range generates only 5% of its annual revenues from golf activities, and 4% of total revenues; however, its presence is essential for LTGC to offer instruction and is important to overall golf course operations. NGF data compiled in 2002 show that 84% of daily fee courses had driving ranges (National Golf Foundation, 2002). Research conducted by Sportometrics in 2001 for non-traditional length courses determined that driving ranges increase both play and fees commanded at both traditional and non-traditional length golf courses. As of the writing of that research 50% of non-traditional length courses had a driving range (Sportometrics, 2001).

Snowmobile (Sublease) Operations Revenue

Consistent with permitted uses at Lake Valley SRA, winter recreational activities may occur at the golf course from November through March. Winter recreation activities may include snowmobiling, cross-country skiing, ski rentals and equipment sales. Currently, the driving range area of the property is used as a snowmobile track. Guests can rent a snowmobile to ride for 30-minute increments around an oval track located in the driving range[3].

[3] Snowmobiles are not permitted anywhere else on the property, except by golf course staff. Staff periodically patrols the golf course and checks course conditions.

Table 8: Base Data – Annual Revenues

Revenues	Calendar Year 2003	2004	2005	2006	2003 - 2006 Average	Percent of Activity	Percent of Revenue
Golf Concessionaire Operations	**All Figures in 2007 Dollars**				**[1]**	[1]	
Golf Activities							
Green Fees	$1,514,162	$1,434,586	$1,262,750	$1,262,118	$1,368,000	68%	49%
Cart Rental	$580,300	$551,607	$462,766	$474,812	$517,000	26%	18%
Driving Range	$116,721	$120,804	$97,715	$94,011	$107,000	5%	4%
Nike Golf Learning Center	$26,752	$29,084	$14,027	$11,671	$20,000	1%	1%
Subtotal Golf Activities [2]	**$2,237,935**	**$2,136,080**	**$1,837,258**	**$1,842,612**	**$2,012,000**	**100%**	**72%**
Concessions/Other							
Merchandise	$239,314	$174,745	$157,590	$150,812	$181,000	23%	6%
Food	$303,066	$310,125	$315,609	$290,052	$305,000	39%	11%
Beverage	$186,106	$201,862	$194,604	$184,486	$192,000	25%	7%
Service charges, fees & other	$117,688	$77,559	$121,883	$105,647	$102,000	13%	4%
Subtotal Concessions/Other	**$846,173**	**$764,292**	**$789,686**	**$730,997**	**$780,000**	**100%**	**28%**
Subtotal Annual Revenue	**$3,084,108**	**$2,900,372**	**$2,626,945**	**$2,573,609**	**$2,792,000**		
Snowmobile Sub-lease Payments to American Golf [3]	n.a.	$19,748	$22,561	$9,295	$17,000		1%
Total Annual Revenue [4]	**$3,084,108**	**$2,920,120**	**$2,649,506**	**$2,582,905**	**$2,809,000**		**100%**
Rounds Played	34,709	34,008	31,082	32,853	33,163		
Revenues (in 2007 Dollars) per Round Played [4]	**$89**	**$86**	**$85**	**$79**	**$85**		

Source: American Golf Corporation

rev

[1] Figures may not add exactly due to rounding.
[2] The Nike Golf Learning Center no longer operates, reducing the annual average golf activity revenue from $2,012,000 to $1,992,000.
[3] See Table 9.
[4] Includes non-golf activity revenue such as snowmobiling sub-lease payments to American Golf Corporation and non-golf related events revenue.

American Golf Corporation has subleased snowmobile operations since 2000, and recently executed a new sublease agreement with Sierra Mountain Sports for two years, which started with the 2007-08 winter season. Under terms of the lease, sublease rent is paid to American Golf Corporation at an increasing percentage as revenue increases[4].

Winter operations revenue for calendar years 2004, 2005, and 2006 is shown in ***Table 9***. During these years, sublease payments to American Golf Corporation fluctuated between $9,000 and $23,000 in 2007 dollars, with an average rent of $17,200 per year. Using this data, approximately 23% of American Golf Corporation's average annual winter gross revenues are from snowmobile operations, with the remaining revenues generated by events held at the clubhouse. Snowmobile revenues are highly variable from year to year due to variation in the amount and timing of snowfall.

Snowmobile operations are typically conducted by two or three employees; however, staffing is determined by projected demand.

EXPENDITURES

Expenditures for the 2003 through 2006 time period are shown in ***Table 10***. All figures are shown in 2007 dollars. Expenses are broken down by the various expense-generating categories:

- cost of goods,
- payroll,
- operating expenses (including utilities),
- equipment leases and rentals, and
- fixed costs of taxes and insurance.

Average annual expenditures in 2007 dollars are $233,000 for cost of goods, $628,000 for payroll, $286,000 for operating expenses, $89,000 for leases and replacement of equipment, and $79,000 for taxes and insurance. The greatest share of expenditures is payroll, at 48% of total average annual expenditures.

[4] Rent is 16% for the first $75,000 in revenues, 20% for the next $50,000, and 23% for all revenue exceeding $125,000.

Table 9: Snowmobile Revenues and Sublease Payments

Item	2004	2005	2006	Average Annual
Snowmobile Operations				
Gross Revenues [1]	$93,134	$102,782	$49,288	$81,735
Gross Revenues in 2007 Dollars [1]	**$103,015**	**$110,617**	**$51,150**	**$88,261**
Lease Payments to American Golf	$17,854	$20,963	$8,957	$15,925
Lease Payments to American Golf in 2007 Dollars	**$19,748**	**$22,561**	**$9,295**	**$17,202**
LTGC Winter Operations Revenue (November through March)		***All Figures in 2007 Dollars***		
Snowmobile Sub-concessionaire Sub-lease Payments to American Golf	$19,748	$22,561	$9,295	$17,202
Estimated Other Revenues [2]	$57,634	$54,584	$65,446	$59,222
Gross Revenues [3]	**$77,382**	**$77,145**	**$74,742**	**$76,423**
Estimated percentage of winter revenues from snowmobiling	*26%*	*29%*	*12%*	*23%*

Source: American Golf Corporation and California State Parks snowmobiling

[1] Total revenues by the sub-concessionaire.
[2] Revenues from activities other than snowmobiling (such as events).
[3] Gross revenues reported by American Golf Corporation to State Parks for the months of November through March inclusive.

Table 10: Base Data – Annual Expenditures

Expense Item	Calendar Year				2003 - 2006 Average	Percent of Activity	Percent of Total Cost
	2003	2004	2005	2006			
		All Figures in 2007 Dollars			**[1]**		[1]
Cost of Goods							
Merchandise	$154,708	$101,940	$93,841	$81,236	**$108,000**	46%	8%
Food and Beverage	$126,210	$124,666	$121,031	$129,624	**$125,000**	54%	9%
Subtotal Cost of Goods	**$280,917**	**$226,605**	**$214,872**	**$210,860**	**$233,000**	**100%**	**18%**
Payroll							
Golf and Facilities	$87,662	$58,829	$51,269	$42,924	**$60,000**	10%	5%
Carts & Range	$42,418	$38,822	$27,510	$40,117	**$37,000**	6%	3%
Nike Golf Learning Center	$28,827	$26,409	$18,065	$5,125	**$20,000**	3%	2%
Course Maintenance	$234,961	$240,555	$234,939	$215,957	**$232,000**	37%	18%
Food and Beverage	$183,739	$179,570	$173,374	$172,296	**$177,000**	28%	13%
General and Administrative	$95,077	$108,777	$110,217	$94,785	**$102,000**	16%	8%
Subtotal Payroll	**$672,684**	**$652,961**	**$615,374**	**$571,205**	**$628,000**	**100%**	**48%**
Operating Expenses (including Utilities)							
Golf	$8,777	$6,004	$8,804	$6,217	**$7,000**	2%	1%
Carts & Range	$10,285	$18,727	$14,427	$12,647	**$14,000**	5%	1%
Nike Golf Learning Center	$619	$72	$491	$5,739	**$2,000**	1%	0%
Nike Golf Membership	$19,268	$670	$0	$0	**$5,000**	2%	0%
Course Maintenance	$60,111	$74,500	$68,802	$67,012	**$68,000**	24%	5%
Food and Beverage	$15,441	$15,333	$20,889	$18,666	**$18,000**	6%	1%
General and Administrative	$76,787	$84,367	$100,936	$86,660	**$87,000**	30%	7%
Facilities	$11,504	$14,183	$16,732	$14,942	**$14,000**	5%	1%
Water	$5,815	$5,309	$6,533	$5,847	**$6,000**	2%	0%
Power	$29,431	$35,626	$49,968	$52,567	**$42,000**	15%	3%
Phone / TV / Internet Providers	$13,010	$10,196	$7,403	$7,546	**$10,000**	3%	1%
Solid Waste	$12,834	$15,541	$13,471	$14,515	**$14,000**	5%	1%
Subtotal Operating Expenses	**$263,882**	**$280,529**	**$308,456**	**$292,360**	**$286,000**	**100%**	**22%**
Leases and Rentals, Equipment Replacement							
Carts	$54,074	$59,277	$62,387	$62,746	**$60,000**	67%	5%
Maintenance	$38,125	$19,433	$15,561	$24,515	**$24,000**	27%	2%
Kitchen	$11,309	$4,031	$2,137	$2,618	**$5,000**	6%	0%
Subtotal Leases and Rentals, Equipment Replacement	**$103,508**	**$82,740**	**$80,086**	**$89,880**	**$89,000**	**94%**	**6%**
Taxes and Insurance							
Property Tax	$64,741	$64,098	$65,847	$64,670	**$65,000**	82%	5%
Insurance	$24,572	$16,864	$23,212	$21,170	**$21,000**	27%	2%
Other	($5,968)	($4,322)	($18,138)	$0	**($7,000)**	-9%	-1%
Subtotal Taxes and Insurance	**$83,345**	**$76,640**	**$70,921**	**$85,840**	**$79,000**	**100%**	**6%**
Total Annual Expenses	**$1,404,337**	**$1,319,476**	**$1,289,709**	**$1,250,143**	**$1,316,000**		**100%**

Source: American Golf Corporation and Hansford Economic Consulting

[1] Percentages may not add exactly due to rounding.

exp

SECTION 4: COMPETITIVE MARKET ANALYSIS

The findings of the competitive market analysis affect the demand for play and pricing variables under each economic scenario modeled in ***Section 5***. This section of the report first discusses national golf trends then describes the competitive market region, golf courses within that region, and statistics associated with those golf courses. Independent evaluation is made as to how the characteristics of these golf courses influence desirability of play and pricing at LTGC.

NATIONAL GOLF TRENDS

Since 1950, the number of American golfers has grown tenfold, from 3.5 million to roughly 30 million. The percentage of Americans playing has risen from 3.5% to 12.6%. The number of golf facilities has more than tripled, from about 5,000 to 16,000. With golf now considered a major sport, the golf industry is big business in America. To put it in perspective, the golf industry sector is approximately the same economic size as the motion picture industry in the United States (SRI International and the World Golf Foundation, 2002).

In 2000, golf accounted for $62 billion of goods and services in the United States, of which $20.5 billion in revenues were generated at golf facilities, primarily through green fees (National Golf Foundation). During the first Zagat golf survey period (2006-2007), golfers reported spending an average of nearly $775 per person on equipment. According to the NGF's 2007 golf participation study (National Golf Foundation, Second Quarter 2007), there were 28.7 million golfers in the U.S. ages 6 and above in 2006.

The total number of golfers is driven by two key variables, 1) population growth and 2) participation rate growth. Golf participation[5] is affected by several factors including ethnicity, age, and gender of players.

Per the NGF, the number of frequent golfers and rounds played has leveled off over the past several years[6]. The NGF's perspective on the future of golf (National Golf Foundation, 2006) is that continued increase in rounds played will occur based on population growth and the aging of the population (older persons tend to play more since they have more time available for leisure). A potentially better future exists if the industry can increase participation rates, particularly among non-traditional golfing segments by capturing latent demand. Latent demand includes golfers who want to play more, former golfers who want to try again, and persons interested in playing golf. NGF estimates participation rates will

[5] Participation Rate definition: The percentage of a given population or demographic group who are golfers.
[6] Round of Golf definition: A round of golf is defined by one person who tees off in an authorized "start" on a golf course. The round is not defined by the number of holes played or the fees paid.

decrease without increased programs aimed at maintaining and increasing participation rates. Population growth in the future may not be favorable for golf because the fastest growing segments of population are Hispanic and African-American which have lower participation rates than the non-Hispanic white population.

Trends noted by NGF since 1986 and implications for LTGC include these shown in ***Table 11***.

Table 11: National Golf Trends Implications for LTGC

National Golf Trends	Implications for LTGC
The 5-17 age group has experienced the greatest increase in golf participation, indicating that golf has become more of a family activity. (The trend of golf to a more family sport was confirmed by the Zagat Survey of 2007/2008).	Primary audience is vacationers and day trip visitors; however, under terms of the concession agreement, discount programs may be offered for junior and senior golfers to encourage increased participation by these age groups.
Caucasians have the highest participation rate of any ethnic group.	Participation rates at LTGC are more a function of income because the majority of players are visitors.
Core golfers (those aged 18 years and older who play eight or more rounds per year) are responsible for 91 percent of all rounds played and 87 percent of all golf-related spending. The number of core golfers has not increased since 1992, but the number of occasional golfers has.	The implication for LTGC is the same as for all golf courses; greater revenues can be realized by capturing more core golfers than occasional golfers.
Avid golfers (25+ rounds annually) make up the smallest player segment (23 percent), but accounted for 63 percent of all golf-related spending in 2002.	Avid golfers are most likely to be locals in LTGC's market; important contributors to the golf course, particularly during the early and late portions of the season.
The recent leveling-off of rounds played may be temporarily negated by baby boomers who have more time for leisure	Not necessarily true for LTGC since older persons have more fixed incomes; increased travel costs have a greater influence on number of rounds played.

GOLF PLAY AND EVENTS AT LAKE TAHOE GOLF COURSE

LTGC is located approximately three and a half miles south of the City of South Lake Tahoe on the west side of US 50 / SR 89 on California State Parks property within Lake Valley SRA.

LTGC is a daily fee public course offering 18-hole regulation play with clubhouse facilities used to host weddings and banquets. Golfers may rent powered carts and golf clubs and utilize the driving range and practice greens to warm up. The golf course is a par 71 course with a total playing distance of 6,707 yards.

LTGC hosts a variety of golf tournaments and outings each season. In total, about 16% of rounds played at LTGC are tournament rounds, where tournament rounds may include parties of large corporate outings, traveling golf clubs, civic associations, government agencies, bachelor parties, reunions, and memorial events. Pricing for golf events differs from open play rounds. Open play rounds typically pay $80 per player, which consists of a $55 greens fee and a $25 cart fee. Tournament / event golf packages start at $95 per player and include greens fees, cart fees, range balls, reservations, and tournament services (such as contests, scoring, cart signs, and other personal attention as needed). In addition, LTGC will provide customized packages with food and beverage depending on the needs of the party.

Throughout the year, LTGC hosts a variety of non-golf functions, such as weddings and banquets. The average number of events has been 37 per year. Of the approximately 37 events per year, about 15 of these occur during the winter months. According to American Golf Corporation, the non-golf segment of the business has grown over the past few years as a result of the quality of the venue and the tremendous scenery and views from the clubhouse grounds. Banquet events consist of civic events, meetings, reunions, memorials services, holiday parties, birthday parties, and any other type of event other than a wedding. Approximately 15% of food and beverage sales are made at the snack bar.

As previously discussed, winter operations at LTGC include snowmobile rides on the driving range.

2007 STATE PARKS SURVEY

During the 2007 golf season, State Parks conducted an on-site survey of golfers (see ***Appendix B*** for a copy of the questionnaire). A total of 227 complete surveys were collected. The surveys represent responses from less than 1% of the total player population; therefore, the results are not statistically valid. Nevertheless, they are still useful and indicative of the total player population profile and preferences.

The surveys revealed that approximately two-thirds of the players at the Lake Tahoe Golf Course are visitors, and one-third of players are local (defined as residing in South Shore). Because the majority of players are non-local, it is unsurprising that just over half of all players make less than 5 visits per year. About thirty percent of the survey respondents play more than 16 times per year. If the players frequenting the course more than 16 times per year represent the local player population, then over the course of the summer the locals play golf more than 3 times per month. These local players are avid golfers[7]. Origination of players and number of visits is shown in ***Table 12***.

Table 12: Summary Statistics from 2007 State Parks Survey

	First Time Survey Respondent		Repeat Survey Respondent	
Survey Item	Total	Percent of Total	Total	Percent of Total
Total Surveys completed	**227**		**2**	
Origination of Players				
Number of Locals (South Lake Tahoe)	87	38%	2	100%
Number of Visitors	140	62%	0	0%
Total	**227**	**100%**	**2**	**100%**
Number of Visits per Year				
1 - 5	121	53%	0	0%
6 - 15	30	13%	1	50%
16+	70	31%	1	50%
No response	6	3%	0	0%
Total	**227**	**100%**	**2**	**100%**

Source: California State Parks, October 2007 surveys

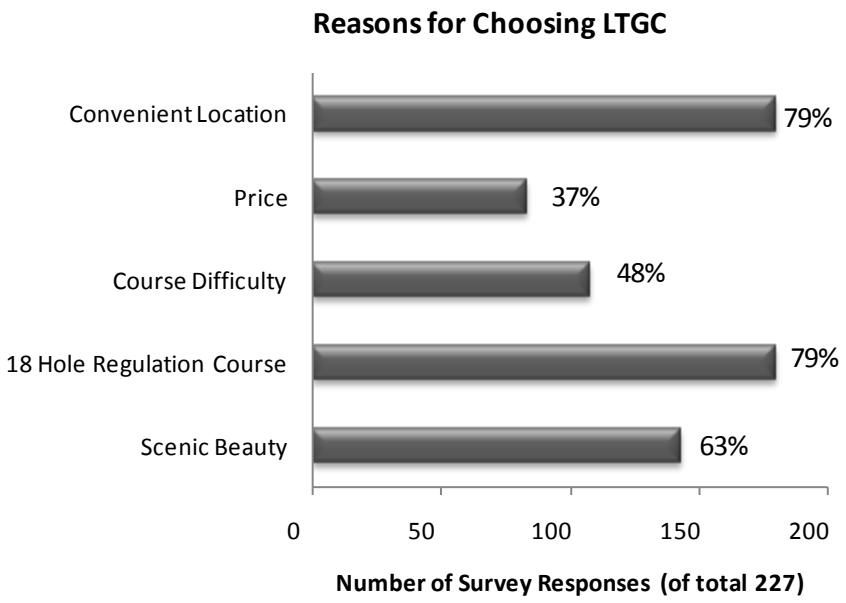
Figure 4 depicts the popularity of reasons offered in the survey for choosing to play at LTGC. The chart indicates that the survey respondents' primary reasons for playing at this golf course are convenience of the location, and playing an 18-hole regulation course. Scenic beauty was chosen by 63% of the respondents as a reason for choosing this golf course, followed by course difficulty, and price. (In a recent Northern California Golf Association 'Golf' Magazine article (Stuller, Summer 2007), location, particularly of golf courses in beautiful settings is central to determining demand for a course. In this article, aesthetic aspects are among the most important variables determining pricing).

Finally, the survey also asked players what type of golf course they would play if the course was altered due to river restoration activities. Overwhelmingly the respondents said they would play a modified 18-hole regulation course, even if some holes were relocated across the river, and that they would not play a 9-hole course or an 18-hole executive course with

[7] 'Avid' or 'Core' golfers are defined as golfers who people age 18 or older who play eight or more rounds per year.

all holes located on the clubhouse side of the river[8]. Responses to these questions are shown in pie charts in ***Figure 5***.

Figure 4: Survey Responses – Reasons for Choosing LTGC

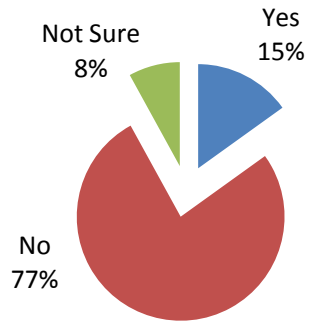


Comments and suggestions made by survey respondents were grouped together by topic area and summarized and are presented in ***Appendix B***. The comments reflect a diversity of opinions regarding the golf course and restoration of the Upper Truckee River.

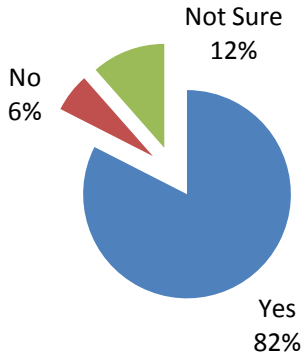
[8] These survey respondents are likely to be biased regarding changes made to LTGC; a reduced-play area golf course would likely appeal to a different group of golfers.

Figure 5: Survey Responses - Preference for Golf Course Type and Layout

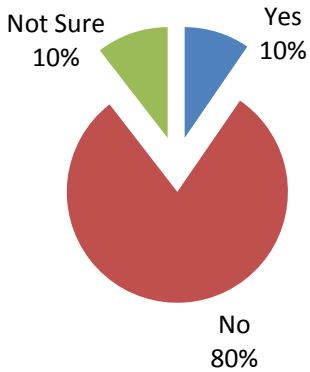
Would you Play an 18-hole Executive Course?
(All on Clubhouse side of river)



Would you Play a Modified 18-hole Regulation Course?
(Some holes across river)



Would you Play a 9-hole Course
(All on Clubhouse side of river)



COMPETITIVE GOLF COURSES (SCENARIOS 1A AND 1B)

There are numerous golfing opportunities in the Lake Tahoe Region. ***Map 1*** displays the public 18-hole regulation courses (in black) and non-traditional length golf courses (in red) within this region.

Not all of these golf courses are considered to be competitors of LTGC, as explained below. The Tahoe interregional/intraregional transit study prepared for TRPA (LSC Consultants, 2006) reports that a 2004 survey of South Lake Tahoe visitors indicated that the summer visitor population originates from:

- The Bay Area - 21.8% (of which 76% arrive by private auto)
- Southern California – 19.8% (of which 59% arrive by private auto)
- Central California – 15.4% (of which 76% arrive by private auto)
- Other, including Nevada (43.0%) (of which 40% arrive by private auto)

If two-thirds of rounds played at LTGC are by non-locals, and the above percentages are applied to rounds played, then approximately 80% of LTGC's business arrives by automobile and approximately 20% of business arrives by air. ***Table 13*** shows this calculation.

Given this information and the fact that most visitor (non-local) players will travel to South Lake Tahoe by vehicle on US 50, this report does not consider the numerous golf courses in Truckee and around the California side of north Lake Tahoe to be in competition with LTGC. Visitors to the area arriving via Interstate 80 have no economic rationale to bypass these golf courses and continue to drive to South Lake Tahoe for golf[9].

This report considers competitive golf courses to be:

- Public 18-hole courses,
- 18-hole courses that offer a similar experience to LTGC in terms of aesthetic appeal, and
- Courses located within a 60-minute drive from South Lake Tahoe.

Map 2 shows the competitive golf courses based on these criteria.

[9] Local players may drive to the North Shore to play new courses offered in this area; however, no attempt has been made to quantify this because the bulk of golf revenues are generated by visitor players (more than 80% of golf revenues are generated during the June through September months when visitors are estimated to make up more than two-thirds of the players).

Map 1: Public Golf Courses in the Region

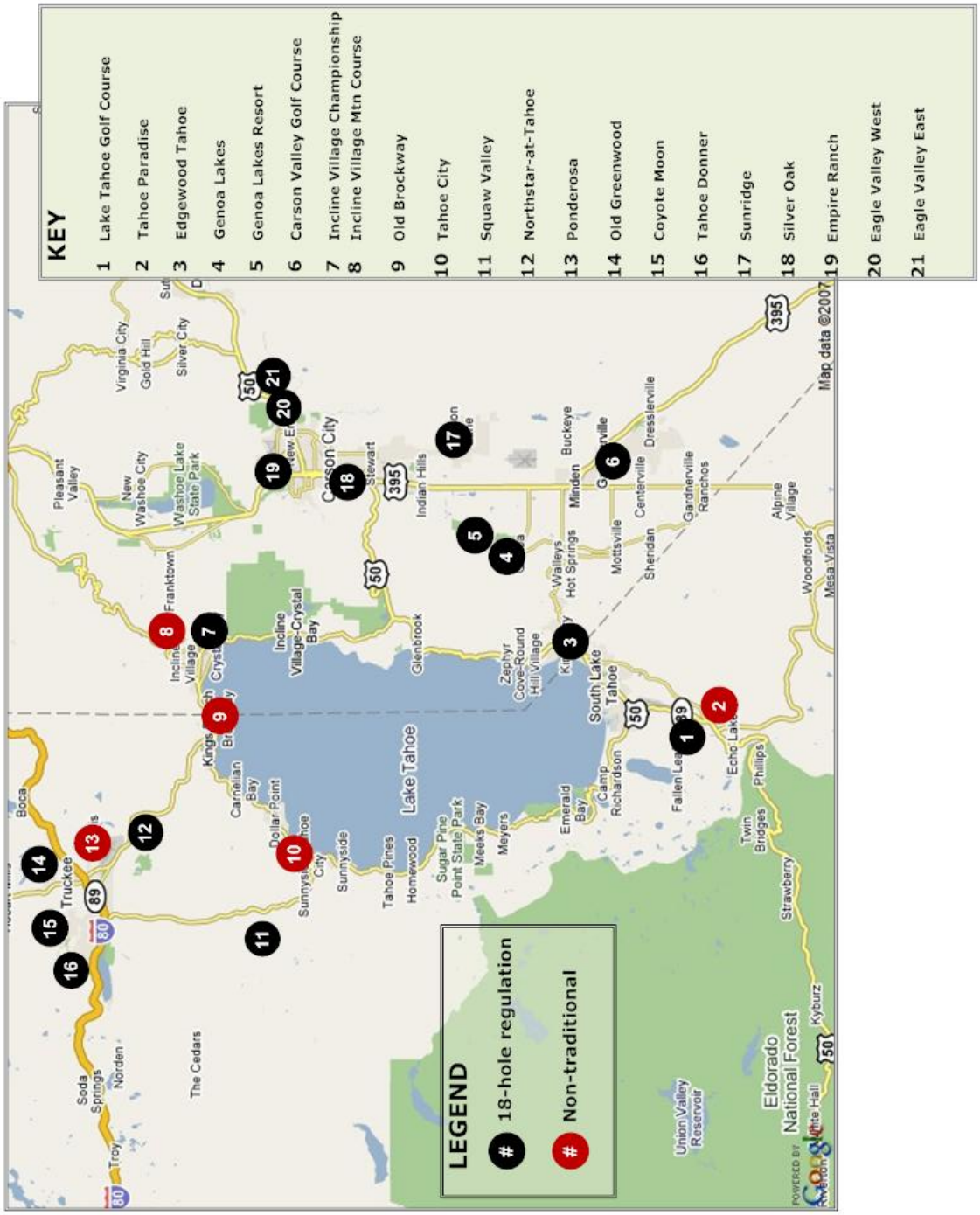


Table 13: Origination and Mode of Transportation of LTGC Visitors

LTGC Visitors	Percent of Total Summer Visitation	Percent of Visitors by Auto	Percent of Total Visitors arriving by Auto	Calculation	LTGC Rounds Played	Percent of Total Rounds
Origination of Visitors to South Lake Tahoe in Summer						
Bay Area	22%	87%	19%			
Southern California	19%	70%	13%			
Central California	15%	83%	13%			
Other and Out of State	44%	58%	25%			
Total	**100%**		**70%**	**a = 70%**		
Total Rounds Played at Lake Tahoe Golf Course				**b**	**33,163**	
Estimated Rounds Played by Visitors				c = b*67%	22,219	67%
Estimated Rounds Played by Locals				d = b*33%	10,944	33%
Total Rounds Played					**33,163**	**100%**
Estimated LTGC Visitor Golfers arriving by Auto				**e = a*c**	**15,651**	

Source: Hansford Economic Consulting and Tahoe Interregional/Intraregional Transit Study, prepared by LSC transportation consultants, 2006.

visit shore

Map 2: Location of Scenarios 1A and 1B Competitor Golf Courses

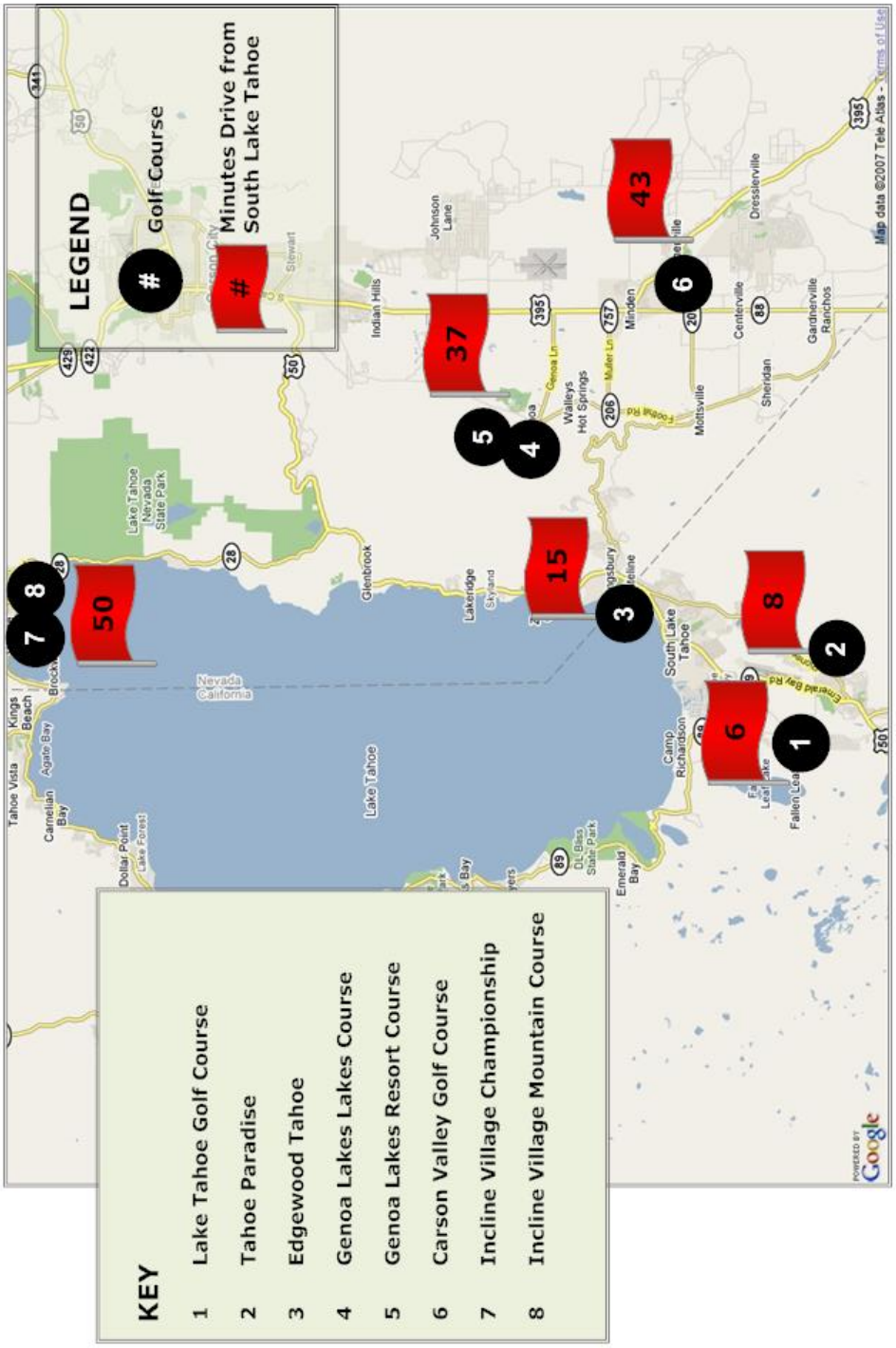


Table 14 on the following page lists attributes of competitive golf courses sorted by distance from the intersection of Emerald Bay Road and Lake Tahoe Boulevard in South Lake Tahoe. Of the seven competitive courses, two are non-traditional length 18-hole golf courses. The non-traditional length courses are Tahoe Paradise, which is also the closest golf course to LTGC, and the Mountain Course at Incline Village. Three of the golf courses are outside the Tahoe Basin but offer spectacular views of the Eastern Sierra in meadow settings, and are closer than the competitive courses on the Nevada-side north shore of Lake Tahoe. These golf courses, located in Genoa and Gardnerville, are open year-round.

Green fees for the identified competitor golf courses are shown in ***Table 15*** and represent rack rate fees for peak season weekend play with a cart. LTGC has the lowest fees of the 18-hole regulation courses with the exception of Carson Valley Golf Course. Given the caliber of Carson Valley Golf Course, this golf course is only considered to be in competition with LTGC for its share of local, rather than visitor players. Descriptions of LTGC's competitors are provided in ***Appendix C*** of this report.

Table 15: Green Fees at Competitor Public Golf Courses

Public Golf Course	Regulation (R) or Non-traditional (N) Facility	Rack Rate [1] 18 Holes	Rack Rate [1] Twilight	Cart Rental
Lake Tahoe Golf Course	R	**$80**	**$60**	Included in green fee
Tahoe Paradise	N	$58	$39	Included in green fee
Edgewood Tahoe	R	$225	$175	Included in green fee
Genoa Lakes Resort (Lakes Course)	R	$120	$85	Included in green fee
Genoa Lakes Resort Course	R	$90	$65	Included in green fee
Carson Valley Golf Course	R	$30	$25	Included in green fee
The Championship Course at Incline Village	R	$169	$99	Included in green fee
The Mountain Course at Incline Village	N	$62	$40	Included in green fee
Median Rack Rate		**$85**	**$63**	

Source: The Weekly Magazine, June 2007, individual golf course websites comp fees

[1] Peak season rates for weekend play. These rates do not reflect revenue per round realized by the golf course.

The median rack rate for LTGC's competitors is $85 for 18 holes. In 2008 the NGF reported the average cost of a round of golf at 18-hole public courses (daily fee and municipal) to be $51 indicating that the region commands higher fees that the national average.

Table 14: Competitive Courses (Scenarios 1A and 1B)

Lake Tahoe Golf Course Economic Feasibility Analysis
Competitive Public Golf Courses (Scenarios 1A and 1B)

Shown in Map 2

Golf Course	Number of Holes	Regulation (R) or Non-traditional (N) Facility	Year Opened	Estimated Number of Rounds	Tahoe Basin (TB) or Eastern Sierra (ES)	Course Length (Yards)	Par	Distance (Miles) [1]	Estimated Travel Time (Minutes) [2]	Designed By
Lake Tahoe Golf Course	**18**	**R**	**1960**	**33,163**	**TB**	**6,707**	**71**	**3**	**6**	**William Bell**
Tahoe Paradise	18	N	1960	n.a.	TB	4,028	66	5	8	Bruce Beeman
Edgewood Tahoe	18	R	1968	n.a.	TB	7,532	72	6	15	George Fazio
Genoa Lakes Resort (Lakes Course)	18	R	1993	n.a.	ES	7,263	72	20	37	Peter Jacobsen
Genoa Lakes Resort Course	18	R	1998	n.a.	ES	7,358	72	22	38	John Harbottle
Carson Valley Golf Course	18	R	1960	n.a.	ES	6,023	71	25	43	Red Swift
The Championship Course at Incline Village	18	R	1964	26,665	TB	6,932	72	30	50	Robert Trent Jones Jr and Sr
The Mountain Course at Incline Village	18	N	1968	18,739	TB	3,513	58	32	55	Robert Trent Jones Jr and Sr

Source: Google Maps, Reno Tahoe Visitor and Convention Bureau, GolfCoursesGuide.com,and Hansford Economic Consulting

competitive

[1] Distance is measured in road miles originating from the intersection of Emerald Bay Road and Lake Tahoe Boulevard in South Lake Tahoe.
[2] Travel time is estimated by Google Maps from the intersection of Emerald Bay Road and Lake Tahoe Boulevard in South Lake Tahoe.

NON-TRADITIONAL LENGTH GOLF COURSES (SCENARIO 2)

As already described more fully in ***Section 2*** of this report, a non-traditional length golf course is a 9-hole regulation course or an alternative length course, which includes par-3 courses, executive courses, pitch and putt courses, and other courses of nontraditional hole configuration.

Map 3 shows locations of non-traditional length golf courses within the wider region that may be used as comparables for Scenario 2. There are no public par 3 or pitch and putt courses in the region. Both Tahoe Paradise and The Mountain Course at Incline Village are executive 18-hole courses. Ponderosa golf course in Truckee, Old Brockway in Kings Beach, and Tahoe City golf course are the best 9-hole comparison courses. All of these 9-hole courses are of regulation length. Attributes including number of rounds played and rack rate green fees of these courses are listed in ***Table 16***.

Since this analysis does not presume a golf course layout under Scenario 2 (it could be a 9-hole course or an 18-hole executive course, or some other configuration), a low to high range of potential rounds played and green fees charged for the reduced-play area course is modeled to provide a range of potential revenues and expenditures.

Scenario 2 Potential Rounds Played

The low end of the range of number of rounds played under Scenario 2 is 15,000 rounds which is the lowest number of rounds of the comparison courses listed in ***Table 16***. The high end of the range is 25,000 rounds, which is the highest number of rounds of the comparison courses listed in ***Table 16***. Number of rounds data was provided by each of the comparison golf courses.

Scenario 2 Potential Range of Fees

The average rack rate (greens fee) to play 18-holes at the Tahoe comparable courses with a cart is $78; however, when comparing green fees per round, the median rack rate is 71% of the rack rate at LTGC. (The rack rate is the published rate charged which is greater than the actual fee charged per round). According to the NGF (National Golf Foundation, 2007), the median rack rate for a round of golf at non-traditional golf facilities (excluding resort public facilities) cost $22.00. The median rack rate for a round of golf at public 18-hole regulation facilities cost $40.00. At the national level, non-traditional facilities command 55% of the greens fees at 18-hole regulation course facilities.

The difference in the range is the rack rate as a percentage of LTGC's rack rate. At the low end of the range the rack rate is 55% of LTGC's rack rate per NGF statistics. At the high end of the range the rack rate is the median price point of the comparable Tahoe golf courses as a percentage of LTGC's rack rate (71%).

Map 3: Location of Scenario 2 Comparison Non-traditional Length Golf Courses

Table 16: Number of Rounds and Green Fees Data for Scenario 2 Comparison Courses

Lake Tahoe Golf Course Economic Feasibility Analysis
Comparison Courses for Scenario 2 (Non-traditional Golf Course Configuration)

Shown in Map 3

Item	Public or Municipal	Course Type	Year Built	Number of Rounds [1]	Number of Holes	Yardage	Par (18 holes)	Rack Rates [2] Walk 9 holes	Walk 18 holes	9 holes with cart	18 holes with cart	Cart Rental Rates 9 holes	18 holes
Comparison Non-traditional Length Course													
Tahoe City Golf Course	P	9-hole regulation	1917	n.a.	9	2,631	66	$35	$65	$53	$95	$18	$30
Ponderosa [3]	P	9-hole regulation	1961	15,000	9	3,022	70	$32	$52	$50	$78	$18	$26
Brockway Golf Course	P	9-hole regulation	1926	25,000	9	3,418	72	$40	$70	$57	$96	$17	$26
Tahoe Paradise	P	18-hole alternative	1960	n.a.	18	4,028	66	$30	$40	$42	$58	$12	$18
The Mountain Course [4]	P	18-hole alternative	1968	18,739	18	3,513	58	$38	$62	$38	$62		
Average of Comparison Courses				**19,580**				**$35**	**$58**	**$48**	**$78**	**$16**	**$25**
Lake Tahoe Golf Course	P	18-hole regulation	1960	33,163	18	6,707	71	$25	$55	$35	$80	$10	$25
Rate for a Round of Golf as a Percent of LTGC													
Tahoe City Golf Course										66%		72%	
Ponderosa [3]										63%		72%	
Brockway Golf Course										71%		68%	
Tahoe Paradise											73%		72%
The Mountain Course [4]											78%		
Median Rate of Tahoe Comparison Courses									**71%**			**72%**	
Median Green Fee for Non-traditional courses in the US (2006) per the NGF [5]									**55%**			**55%**	

Source: HEC telephone conversations with listed golf courses and the NGF Golf Industry Report First Quarter 2007 alt courses

[1] Number of rounds is counted as total number of players paying to tee off therefore 18 holes at the 9-hole facilities counts as one round. Estimates (rounded) and actuals provided by each golf course.
[2] 2007 Rates.
[3] In June 2008 the Truckee Tahoe Airport District (with financial assistance from the Town of Truckee, Truckee Trails Foundation and Truckee Donner Land Trust) purchased the Ponderosa Golf Course. It is now managed by the Truckee Donner Recreation and Park District and fees are anticipated to decrease. Rounds played were estimated at 23,000 in 2007 by golfcoursesguide.com; new management anticipates annual rounds to be no less than 15,000.
[4] The Mountain Course charges the same whether a cart is rented or not.
[5] Non-traditional facilities - either stand-alone 9-hole regulation or short courses (executive or par 3) green fees as a percentage of green fees for facilities with only 18 regulation holes. Green fees are peak season full rate weekend fees with cart. Cart may not be required at all courses. Full rates are rarely charged.

As of December 31, 2006, there were 904 18-hole equivalent (includes 9-hole, 18-hole, and 27-hole) golf courses in California, and 108 in Nevada (National Golf Foundation, 2007). Daily fee courses constituted 46% of total supply in California, and 61% in Nevada. Of all courses, including municipal and private, 84% were regulation length, and the remaining 16% executive or par-3 length courses in California. The share of regulation length courses is greater in Nevada. ***Table 17*** shows these statistics for California, Nevada, and the U.S. The data suggests consumer preference for regulation golf courses.

Table 17: National Golf Course Supply

Area	Total	Daily Fee	Regulation	Executive	Par 3
California	904	413	763	84	57
Percent of Total		*46%*	*84%*	*9%*	*6%*
Nevada	108	66	102	4	3
Percent of Total		*61%*	*94%*	*4%*	*2%*
US Total	14,968	8,321	13,702	724	542
Percent of Total		*56%*	*92%*	*5%*	*4%*

Source: NGF Golf Industry Report, First Quarter 2007 supply

Nationwide the current outlook for 9-hole courses is not favorable. In both 2005 and 2006 golf course closures were disproportionately short courses (National Golf Foundation, 2007). In 2007 stand-alone 9-holers or short courses (executive or par-3) accounted for 43% of total closures (20% of the US supply). This trend in short course closings is largely accounted for by higher and better economic uses of land rather than business failure. As described by the NGF (National Golf Foundation, January 2008), "Courses may be sold to developers when the underlying land has greater commercial real estate value than cash flow value as a golf course".

In a 2001 Golf 20/20 publication (Sportometrics, 2001) twelve major findings were made with regard to the feasibility of alternative golf facilities. These major findings and implications for LTGC are summarized in ***Table 18***.

Table 18: Golf 20/20 Report Findings and Implications for Scenario 2

Report Findings for Alternative (Non-traditional Length) Courses	Implication for LTGC Scenario 2
1. Golfers pay more at facilities with a full bar.	Favorable, LTGC has a full bar
2. Golfers prefer a club with a beverage cart, snack bar, and restaurant.	Favorable, all available
3. Golfers like a club that accepts tee times.	Favorable, tee times can be booked
4. Golfers pay and play more at clubs with driving ranges, and fees are higher at courses with mats.	Favorable, all available
5. Fees are higher where dress codes require a collared shirt and eliminate denim.	Golf attire preferred but not mandatory
6. Fees are slightly higher in more affluent more densely population and better-educated communities.	Not relevant, primarily a tourist-destination course
7. Rounds are higher in more affluent communities, but education appears to have no impact on rounds played.	Not relevant
8. Golfers prefer newer and longer alternative facilities.	Favorable, sufficient space at LTGC for longer alternative course
9. Fees and average rounds per day are higher in regions where courses are closed some portion of the year because of weather.	Applies to LTGC
10. 18-hole green fees are 48 percent higher than 9-hole fees, on average.	Not borne out by data in this study due to being a tourist destination
11. Green fees are just over 10 percent higher on weekends than they are during the week.	Already reflected in LTGC's pricing
12. Rounds and fees are higher at alternative facilities where there are more traditional courses.	Tahoe Paradise already captures this; may be difficult to do given proximity to this course

MARKET ANALYSIS FINDINGS

Findings

The following findings influence the demand for play (number of rounds) and green fees pricing assumptions used in the economic feasibility model for changes in the reconfiguration and operation of LTGC:

- Convenience of location and scenic beauty are the major assets of LTGC. These factors influencing demand are permanent and may even be leveraged to increase rounds played with a modified course layout if the modifications make the most of potential vistas. Seventy nine percent of LTGC golfers interviewed in 2007 said they chose to play at LTGC because it is an 18-hole regulation course, which suggests strong return golfer demand with reconfiguration of the golf course under Scenario 1B.

  The financial model assumes number of rounds played to remain the same under Scenario 1B as under the Base Case. A reconfigured 18-hole regulation length LTGC may potentially command greater greens fees; however, this analysis conservatively applies the Base Case fees to Scenario 1B.

- Given the close proximity of an executive golf course (Tahoe Paradise) to LTGC it is possible that golfers who enjoy this type of course are already being captured making an executive course less feasible than other types of reduced-play area golf courses; however, this potential assumption is not used in the analysis because the many potential configurations of a reduced-play area are not analyzed.

  The financial model does not specify the type of reduced-play area golf course under Scenario 2. The estimates of variables, including number of rounds played, affecting revenues and expenditures under Scenario 2 are based on data from comparable Tahoe non-traditional length golf courses and other sources as more fully described in the following section of this report.

- Pricing at existing non-traditional courses within the wider region may provide good indication of green fees that may be charged at a reduced-play area reconfigured LTGC; however, given uncertainty as to the configuration of this potential type of golf course, providing a range of potential green fees is more prudent.

  The financial model estimates a range of green fees that may be charged for a round of golf at a reduced-play area golf course. The low end of the range uses the median rack rate of non-traditional golf facilities across the US and the high end of the range uses the median rack rate of Tahoe comparable golf courses.

SECTION 5: FINANCIAL FEASIBILITY ANALYSIS

The financial feasibility model estimates a projection of revenues and costs under each economic scenario based on a set of general assumptions and the base data developed in ***Section 3*** of this report.

FEASIBILITY MODEL GENERAL ASSUMPTIONS

Table 19 summarizes the general assumptions used to project revenues and expenses under each economic scenario. Assumptions for each of the variables are explained in detail below and are based in part on research (already presented in ***Section 4***) and in part on discussion with American Golf Corporation and State Parks. Each of the general assumptions used in the projections of revenue and expenses under each scenario is described below.

Golf Course

LTGC continues to be an 18-hole regulation course under Scenarios 1A and 1B but is assumed to have a reduced-play area under Scenario 2. Various non-traditional length golf courses could potentially be built under Scenario 2 including an 18-hole executive course, 9-hole regulation course, and other configurations. The model does not specify which type of course would be built under Scenario 2. A four-combination approach is used to assess the full range of conditions related to the number of potential rounds and green fees (the two assumptions that most significantly affect results of the analysis).

• Low Rounds – Low Fees	• High Rounds – Low Fees
• Low Rounds – High Fees	• High Rounds – High Fees

Number of Golf Rounds

Scenario 1A reflects the average annual number of rounds played at LTGC 2003 through 2006, as previously calculated in ***Table 7***.

Extensive research into whether a modified / renovated 18-hole regulation course would increase, decrease, or have no effect on total number of rounds played yielded no definitive evidence what the outcome might be. Reconfiguration of the Championship Course in Incline Village during the 2003/04 seasons does not appear to have significantly influenced the number of rounds played at that golf course. Based on the research conducted the number of rounds under Scenario 1B is not altered from the Base Case. Ultimately, the number of rounds will be determined based on customer preferences and excellence of course design. Although number of rounds is not increased in this analysis under Scenario 1B it should be noted that there is potential for a price increase which could improve the projected revenues beyond those shown in this analysis.

The range of number of rounds played at a reduced-play area golf course under Scenario 2 is 15,000 to 25,000 rounds. Number of rounds information was obtained via telephone interview with each of the listed courses. Some golf courses declined to provide this information and some do not keep track of this information. The number of tournament rounds to total rounds is assumed to stay proportionately the same under Scenarios 1B as under Scenario 1A, and none are estimated under Scenario 2.

Number of Employees

The estimation of full and part-time jobs provided in ***Table 19*** is detailed in ***Table 20*** for each scenario. Projected number of employees under scenarios 1B, 2, and 3 are based on rounds per employee for golf-activity employees, with the exception of golf course maintenance employees (based on number of major pieces of equipment per employee), and events per employee for food and beverage employees. The estimated number of rounds is described above.

Total number of employees is estimated to increase from 76 to 80 under Scenario 1B, decrease to 60 employees under Scenario 2 (Low Rounds), 65 employees under Scenario 2 (High Rounds), and decrease to 32 employees under Scenario 3.

Green Fees

Given the difficulty of estimating green fees and other associated golf facility charges under each scenario, a ratio was used to reduce or increase prices proportionate to current fees at LTGC. It is assumed that under Scenario 1B green fees would remain at their current level.

Under Scenario 2 the green fees are estimated to range from a low of 55% of Base Case fees based on NGF data to a high of 71% of Base Case fees based on the median fee of Tahoe comparable non-traditional length courses (see ***Tables 15 and 16***).

Traditionally, golf has been considered to be an activity with elastic demand because it is considered a luxury expense rather than a necessity. Having elastic demand means that if the price is lowered then demand for play increases; however, golf is unusual in that it is not only an expense to play in terms of monetary value, but is also time-expensive because a round of golf takes four to five hours to play. Instead of increasing revenues, reducing prices can actually lower the top line and hurt the bottom line (European Golf Course Owners Association). Lacking empirical evidence, it is suggested that demand for play at LTGC is fairly inelastic since the majority of players are visitors who have already allocated leisure time to recreate, and since the locals are unlikely to be able to play twice as much even if the price is halved.

Events and Guests

The number of weddings and banquets was assumed to remain the same under each scenario.

Table 19: General Assumptions used for Projecting Revenues and Expenses

Assumptions	Scenario 1		Scenario 2 (Low Rounds)		Scenario 2 (High Rounds)		Scenario 3
	1A - Base Case	1B	Low Fees	High Fees	Low Fees	High Fees	
Golf Course							
Acreage of Manicured Landscape	100	90	50	50	50	50	0
Number of Golf Carts Leased	85	85	45	45	45	45	0
Pieces of Major Maintenance Equipment	17	19	14	14	14	14	0
Employees (full and part-time)							
Golf Activity Employees	42	46	28	28	33	33	0
Event Activity Employees	31	31	31	31	31	31	31
Administration	3	3	1	1	1	1	1
Total Employees - (see Table 20)	**76**	**80**	**60**	**60**	**65**	**65**	**32**
Number of golf rounds played							
Regular Rounds	27,864	27,864	15,000	15,000	25,000	25,000	0
Tournament Rounds [1]	5,299	5,299	0	0	0	0	0
Subtotal Number of Rounds Played [2], [3]	**33,163**	**33,163**	**15,000**	**15,000**	**25,000**	**25,000**	**0**
Green Fees compared to Base Case [4]	**100%**	**100%**	**55%**	**71%**	**55%**	**71%**	**0%**
Cart Rental Rates compared to Base Case [5]	**100%**	**100%**	**55%**	**72%**	**55%**	**72%**	**0%**
Events							
Number of Weddings	29	29	29	29	29	29	29
Number of Banquets	8	8	8	8	8	8	8
Total Number of Events [6]	**37**	**37**	**37**	**37**	**37**	**37**	**37**
Guests							
Guests at Weddings	3,091	3,091	3,091	3,091	3,091	3,091	3,091
Guests at Banquets	573	573	573	573	573	573	573
Total Guests at Events [6]	**3,663**	**3,663**	**3,663**	**3,663**	**3,663**	**3,663**	**3,663**

tot assumps

Source: Hansford Economic Consulting

[1] Tournament rounds include group outings and events such as bachelor parties. No tournament rounds are projected under Scenario 2.

[2] HEC spent extensive time researching whether a modified / renovated 18-hole regulation course would increase, decrease, or have no effect on total number of rounds played. This research yielded no definitive evidence what the outcome might be. Ultimately the number of rounds will be determined based on customer preferences, and excellence of course design.

[3] Low range and high range rounds based on data from non-traditional length courses in the Tahoe region (see Table 16).

[4] Per the NGF 2006 the median green fee at non-traditional facilities in the US is 55% of the average green fee to play 18-hole facilities. The NGF's estimate accounts for a wide variety of types of courses and is used for the low range of potential fees. HEC has used the average fees of non-traditional length courses in the Tahoe region to reduce green fees for the high range of potential fees (see Table 16).

[5] Low range fees use NGF 2006 data and high range fees use data from non-traditional length courses in the Tahoe region (see Table 16).

[6] Number of events and guests assumed constant for all scenarios.

Table 20: Estimated Employees by Economic Scenario

Lake Tahoe Golf Course Economic Feasibility Analysis
Estimated Number of Employees by Economic Scenario

	2006				Scenario 1		Scenario 2 (Low		Scenario 2 (High		Scenario
					1A - Base		Low	High	Low	High	3
Employees	Employees	Numerator		Multiplier	Case	1B	Fees	Fees	Fees	Fees	
Number of Golf-activity Employees											
Pro Shop	11	33,163	Rounds per Employee	3,015	11	11	5	5	8	8	0
Carts [1]	7	33,163	Rounds per Employee	4,738	7	8	3	3	5	5	0
Maintenance	24	17	Major Pieces of Equipment per Employee	0.708	24	27	20	20	20	20	0
Subtotal Golf-activity Employees	**42**				**42**	**46**	**28**	**28**	**33**	**33**	**0**
Number of Event-activity Employees											
Food & Beverage	31	37	Events per Employee	1.2	31	31	31	31	31	31	31
Subtotal Event-activity Employees	**31**				**31**	**31**	**31**	**31**	**31**	**31**	**31**
Administration [2]	3	n.a.		n.a.	3	3	1	1	1	1	1
Total Employees	**76**				**76**	**80**	**60**	**60**	**65**	**65**	**32**
											emp est

Source: Hansford Economic Consulting

[1] An additional employee is added under Scenario 1B to allow for increased snack cart service.
[2] Currently there are 3 administrative staff positions. HEC estimated administrative positions would reduce to 1 under Scenarios 2 and 3.

ESTIMATED REVENUES BY ECONOMIC SCENARIO

A step by step description of projection of revenues is presented here:

1. Revenue multipliers were developed for each revenue-generating activity to project revenues by economic scenario. Revenue multipliers are shown in ***Table 21*** and are derived by dividing average annual revenues from ***Table 8*** by unit for each line item.

2. All golf activities (green fees, cart rental, and driving range) revenue multipliers are based on rounds played. The revenue multiplier is revenues in 2007 dollars divided by rounds played. There is no revenue multiplier for the Nike Golf Learning Center because this no longer operates. Merchandise, food and beverage and other charges related to golf are also based on rounds played. Golf-related food and beverage revenues are also partially based on the number of cart employees to reflect snack bar sales.

3. Food and beverage related to weddings and banquets, and other revenues (such as wedding and banquet fees and service charges), are estimated on a per event basis.

4. The revenue multipliers are applied to the relevant unit for each revenue activity to estimate total revenues under each scenario. The unit assumptions (total rounds played and number of events) are taken from ***Table 19*** for each economic scenario. Green fees are multiplied by 'green fees compared to base case' ratios to account for changed pricing between the scenarios.

Resulting total revenues by activity are shown for each scenario in ***Table 22.*** Base Case total revenues are $20,000 less than in ***Table 21*** due to the omission of the Nike Golf Learning Center in the revenue projections.

Golf activity revenues are estimated to remain at $2.0 million under Scenario 1B and range from $0.5 to $1.0 million under Scenario 2. Because there is no golf course under Scenario 3, golf-activity revenues are zero. Concessions and other revenues are estimated to increase slightly from $0.78 million under Scenario 1A to $0.80 million under Scenario 1B. Under Scenario 2 (Low Rounds) these revenues decrease to $0.49 million or $0.65 million under Scenario 2 (High Rounds). Events facility only revenues are estimated at $0.26 million under Scenario 3. Winter operations are not estimated to change between scenarios except they would be eliminated along with the golf course in Scenario 3. As previously noted, winter operations are most heavily dependent on weather conditions.

Table 21: Revenue Multipliers Used to Project Revenues by Scenario

Revenues	Revenues in 2007 $s	Multiplier Basis	Unit	Revenue Multiplier
Golf Activities	**(See Table 8)**			
Green Fees	$1,368,000	33,163	Rounds Played	$41.25
Cart Rental	$517,000	33,163	Rounds Played	$15.59
Driving Range	$107,000	33,163	Rounds Played	$3.23
Nike Golf Learning Center [1]	$20,000	n.a.	No longer operating	n.a.
Subtotal Golf Activities [2]	**$2,012,000**			
Concessions/Other				
Merchandise	$181,000	33,163	Rounds Played	$5.46
Food and Beverage - Golf [2] [3]	$285,000	33,163	50% Rounds Played	$4
		7	50% cart employees	$20,357
Service charges, fees & other - Golf	$58,000	33,163	Rounds Played	$1.75
Food and Beverage - Events [2]	$212,000	37	Event	$5,691.28
Service charges, fees & other - Events	$44,000	37	Event	$1,181.21
Subtotal Concessions/Other	**$780,000**			
Total Annual Revenue	**$2,792,000**			rev mult

Source: Hansford Economic Consulting

[1] The learning center is no longer operating hence it is omitted from the revenue multipliers.
[2] LTGC estimates food and beverage revenues of $212,000 from non-golf catered events in 2008.

Table 22: Projected Revenues by Scenario

Lake Tahoe Golf Course Economic Feasibility Analysis
Projected Revenues by Economic Scenario

	Scenario 1		Scenario 2 (Low Rounds)		Scenario 2 (High Rounds)		Scenario 3
LTGC Revenues	1A - Base Case	1B	Low Fees	High Fees	Low Fees	High Fees	
Golf Activities							
Green Fees [1]	$1,368,000	$1,368,000	$340,300	$440,900	$567,200	$734,800	$0
Cart Rental [2]	$517,000	$517,000	$128,600	$128,600	$214,400	$214,400	$0
Driving Range	$107,000	$107,000	$48,400	$48,400	$80,700	$80,700	$0
Nike Golf Learning Center [1]	$0	$0	$0	$0	$0	$0	$0
Subtotal Golf Activities [2]	**$1,992,000**	**$1,992,000**	**$517,300**	**$617,900**	**$862,300**	**$1,029,900**	**$0**
Concessions/Other							
Merchandise	$181,000	$181,000	$81,900	$81,900	$136,400	$136,400	$0
Food, Beverage, Events (Golf Related)	$343,000	$363,400	$155,100	$155,100	$258,600	$258,600	$0
Food, Beverage, Events (Non-Golf Related)	$256,000	$256,000	$256,000	$256,000	$256,000	$256,000	$256,000
Subtotal Concessions/Other	**$780,000**	**$800,400**	**$493,000**	**$493,000**	**$651,000**	**$651,000**	**$256,000**
Snowmobile Lease Payments [3]	$17,000	$17,000	$17,000	$17,000	$17,000	$17,000	$0
Total Estimated LTGC Revenues (rounded)	**$2,789,000**	**$2,809,000**	**$1,027,000**	**$1,128,000**	**$1,530,000**	**$1,698,000**	**$256,000**

Source: Hansford Economic Consulting

tot rev

[1] To estimate green fees, estimated rounds played is multiplied by the revenue multiplier in Table 21 and by the 'Green Fees compared to Base Case' multiplier shown in Table 19.

[2] To estimate cart rental revenue, estimated rounds played is multiplied by the revenue multiplier in Table 21 and by the 'Cart Rental Rates compared to Base Case' multiplier shown in Table 19.

[3] Snowmobile lease payments to American Golf Corporation primarily dependent on weather.

ECONOMIC SCENARIO 3 POTENTIAL ADDITIONAL REVENUES

Between 2003 and 2006 LTGC averaged 37 wedding and banquet events per year and hosted about 3,663 guests. In addition, other golfing-related events and tournaments were catered. These events were catered onsite at the clubhouse. LTGC's clubhouse is 7,000 square feet with about 2,000 square feet of indoor space to host events. In addition, there is a patio area of about 1,600 square feet. Total revenues generated during this time period were $599,000 in 2007 dollars[10]. With 2,000 square feet of space, this equates to sales of approximately $300 per square foot, which is a healthy figure comparable to other eating and drinking places[11]. Of the total event-generated revenue, approximately $256,000 was generated by non-golf events (weddings and banquets). The estimation of this amount is shown in ***Table 21*** (see footnote [2]). With 2,000 square feet of indoor space, non-golf events generate approximately $128 per square foot per year.

The presence of the golf course currently gives LTGC a competitive edge over many of the numerous wedding and banquet venues around Lake Tahoe. Competitors for weddings and banquets are currently Edgewood at Tahoe, Harvey's Casino, Kirkwood Resort, Genoa Lakes Resort, and The Chateau at Incline Golf Courses. With the loss of an operating golf course under Scenario 3, LTGC would no longer compete with these locations but compete with other municipally-run and non-profit operated wedding sites. The Thunderbird Lodge, Valhalla, and North Tahoe Conference Center (NTCC) would be good comparables under Scenario 3; however, of these comparables only NTCC provides catering. Outside catering is brought in for events at Valhalla and Thunderbird Lodge.

NTCC provided revenue information for weddings and banquets at their facility for the base data years (2003 through 2006) used in this analysis. Data was adjusted for inflation to provide an apples-to-apples comparison with LTGC. The data revealed that NTCC caters almost double the number of events of LTGC currently, serves approximately 6,300 guests annually, and, because there is 2,000 square feet of space used for these events, generates sales of about $194 per square foot. Although NTCC generates higher sales per square foot from weddings and events ($194 per square foot compared to $128 per square foot at LTGC), because it caters more events per year, revenue per event/party is lower than at LTGC. This data is presented in ***Table 23***.[12]

If LTGC could generate the same revenues as NTCC for non-golf related events it could capture an additional $131,000 under Scenario 3.

[10] In comparison, the top 5% of daily fee golf courses generating $1.0 - $1.7 million annually reported an average of $603,000 in revenue (National Golf Foundation, 2002).
[11] US median for eating and drinking establishments is $280 per square foot (The Urban Land Institute, 2004).
[12] Thunderbird Lodge hosted 27 events in 2007, 10 of which were weddings. In addition, many dinners are hosted, seating about 120 guests per dinner.

Table 23: Estimated Potential Additional Event Facility Revenue

Lake Tahoe Golf Course Economic Feasibility Analysis
LTGC Event Facility Data

Event Facility	Estimated Annual Revenue Generated by Events [1]	Square Feet of Events Facility Space [2]	Estimated Annual Revenue per Square Foot	Number of Weddings / Private Parties [3]	Approximate Number of Guests [3]	Estimated Revenue per Party
	a	*b*	*c = a/b*	*d*	*e*	*f = a/d*
LTGC Total Event Revenues (see Table 21)	**$599,000**	2,000	**$300**			
LTGC Non-golf Event-related Revenues						
Food and Beverage - Events [2]	$212,000	2,000	$106			
Service charges, fees & other - Events	$44,000	2,000	$22			
Subtotal LTGC	**$256,000**	2,000	**$128**	37	3,663	$6,872
North Tahoe Conference Center (NTCC)						
Wedding and Event Related Revenue	$387,000	2,000	$194	63	6,267	$6,176
Potential Additional Revenue to LTGC	**$131,000**					

Source: North Tahoe Conference Center and American Golf Corporation.

[1] Data period 2003 - 2006.
[3] Data period 2003 - 2006 for LTGC, and 2004 - 2006 for NTCC.
[2] Does not include patio space.

event comp

This study does not attempt to quantify potential other sources of revenue that may be generated if the clubhouse is no longer operated by a concessionaire. Public workshops held in 2007 stimulated the following revenue-generating activities suggestions from building rental:

- Multi-use recreation/visitor center (with features such as a rock climbing wall),
- An arts center, and
- An educational center (for holding community college courses, for example).

ESTIMATED EXPENSES BY ECONOMIC SCENARIO

As for revenues, a step by step description of projection of expenditures is presented here:

1. Expenses are estimated for each economic scenario using expense multipliers developed for each expense activity. Expense multipliers are shown in ***Table 24*** and are derived by dividing average annual expenditures from ***Table 10*** by unit for each line item.

2. Cost of goods expense is based on the historical percentage of these costs to merchandise and food and beverage sales. Payroll expenses are based on number of employees with the exception of instruction which will cost the concessionaire a flat fee of $750 per month for an 18-hole regulation course (this cost is assumed to decrease 50% for a reduced-play area golf course).

3. Operating expenses cost multipliers are based on a combination of rounds played, acres of manicured landscape, number of events, and number of facilities. General and administrative costs are calculated as a percentage of all payroll, operating expenses, leases and rentals, and equipment replacement. Telephone/TV/Internet providers costs are estimated on a per employee basis since they generate the majority of the variable costs associated with this expense activity.

4. American Golf Corporation pays possessory interest property taxes to the El Dorado County Assessor and insurance for facility structures. Because these costs are largely fixed costs, and are not controllable by the golf course concessionaire, they are estimated on a per facility basis.

Table 24: Expense Multipliers used to Project Expenses by Scenario

Expenses	Expenses in 2007 $s	Multiplier Basis	Unit	Cost Multiplier
Cost of Goods	**(See Table 10)**			
Merchandise	$108,000	60%	Percentage of Revenues [1]	60%
Food and Beverage - Golf	$62,500	18%	Percentage of Revenues [1]	18%
Food and Beverage - Events	$62,500	24%	Percentage of Revenues [1]	24%
Subtotal Cost of Goods	**$233,000**			
Payroll				
Golf and Facilities	$60,000	11	Pro Shop Employees	$5,454.55
Carts & Range	$37,000	7	Carts Employees	$5,285.71
Instruction	$20,000	1	Flat $750 / mo for instructors	$4,500.00
Course Maintenance	$232,000	24	Maintenance Employees	$9,666.67
Food and Beverage	$177,000	31	Event Employees	$5,709.68
General and Administrative	$102,000	76	Total Employees	$1,342.11
Subtotal Payroll	**$628,000**			
Operating Expenses (including Utilities)				
Golf	$7,000	33,163	Rounds Played	$0.21
Carts & Range	$14,000	33,163	Rounds Played	$0.42
Nike Golf Learning Center	$2,000		No longer operating	n.a.
Nike Golf Membership	$5,000		No longer operating	n.a.
Course Maintenance	$68,000	100	Acres of Manicured Landscape	$680.00
Food and Beverage	$18,000	37	Events	$483.22
General and Administrative	$87,000	10%	Percentage of Expenses [2]	10%
Facilities	$14,000	33,163	Rounds Played	$0.42
Water	$6,000	1	Facility (includes all structures)	$6,000.00
Power - irrigation [3]	$18,900	100	Acres of Manicured Landscape	$189.00
Power - structures [3]	$23,100	1	Facility (includes all structures)	$23,100.00
Phone / TV / Internet Providers	$10,000	76	Total Employees	$131.58
Solid Waste	$14,000	37	Events	$375.84
Subtotal Operating Expenses	**$287,000**			
Leases and Rentals, Equipment Replacement				
Carts	$60,000	85	Number of Carts	$705.88
Maintenance	$24,000	17	Major Pieces of Equipment [4]	$1,411.76
Kitchen	$5,000	1	Average Annual Cost	$5,000.00
Subtotal Leases and Rentals, Equipment Replacement	**$89,000**			
Taxes and Insurance				
Property Tax	$65,000	1	Facility Structures	$65,000.00
Insurance	$21,000	1	Facility Structures	$21,000.00
Other	($7,000)	1	Facility Structures	($7,000.00)
Subtotal Taxes and Insurance	**$79,000**			
Total Annual Expenses	**$1,316,000**			

Source: American Golf Corporation and Hansford Economic Consulting

exp mult

[1] Percentage of maintenance and food and beverage revenues shown in Table 21.
[2] Percentage of payroll, operating expenses (excluding Nike golf learning center and membership), leases and rentals, and equipment replacement.
[3] Per LTGC, 53% of power bills are for the clubhouse, 6% for the maintenance building, and 41% for the pumphouse (golf course).
[4] Includes equipment such as mowers, aerators, sod cutters, front end loading tractor, and topdressers.

5. Maintenance costs are estimated on a per major piece of equipment basis since the costs of maintaining the course is dependent on variables including demand for play, acres of landscaping and difficulty of maintenance due to golf course layout. The number of major pieces of equipment reflects costs associated with these variables. The number of cart rentals is dependent on demand for play and is estimated to decrease under Scenario 2. Costs associated with the kitchen are likely to remain unchanged under any scenario since these costs are largely fixed costs associated with the ability to host events. There is no expenditure multiplier for the Nike Golf Learning Center and associated membership dues because this no longer operates at LTGC.

Cost multipliers are applied to the unit assumptions in ***Table 19*** to estimate total expense impacts generated by the economic scenarios. The results are shown in ***Table 25***.

Cost of goods is not estimated to change significantly between scenarios 1A and 1B, but is estimated to be reduced under Scenarios 2 and 3. Payroll expenses increase between Scenarios 1A and 1B, reflecting the need for additional employees for additional course maintenance and increased snack bar service. Payroll expenses decrease under Scenarios 2 and 3 because the number of employees decreases under these scenarios.

Operating expenses decrease slightly from $280,000 to $275,000 under Scenario 1B primarily due to decreased acreage of maintained landscape and power costs for irrigation. Operating expenses decrease to $194,000 under Scenario 2 (Low Rounds) or $210,000 under Scenario 2 (High Rounds), and are significantly less at $94,000 under Scenario 3. Leases and rentals costs change based on number of carts and major pieces of maintenance equipment needed. Taxes and insurance are fixed costs that are assumed to stay constant under each scenario.

FINANCIAL FEASIBILITY FINDINGS

Scenarios 1A and 1B are found to be financially feasible. Net revenues are estimated to decrease by less than $20,000 between the Base Case and Scenario 1B.

Scenario 2 is only found to be feasible under the most optimistic of circumstances where number of rounds attained is at the highest range of comparable courses in Tahoe and rack rates are the median of comparable Tahoe non-traditional length facilities. Although net revenues (golf course operations revenues less expenditures) are positive under Scenario 2, the concessionaire would have a negative cash flow after making rent and CIP payments to State Parks in all but the most optimistic of the range of revenues and expenditures under Scenario 2.

Net revenues are negative under Scenario 3.

Scenario 3 revenues include additional revenues that may potentially be generated by an increased number of events held at the clubhouse but does not include an analysis of increased expenses associated with increased events. The negative financial result produced under Scenario 3 would be exacerbated by additional expenses; concessionaire operations would cease at LTGC. Revenues and expenditures are compared in ***Table 26*** for each economic scenario.

A study of the economic impacts of golf in California (Zilberman & Templeton, 2000) made five points worthy of consideration in light of the results of the financial analysis presented in this section.

1. Revenues tend to increase with number of holes, length of course, and difficulty of access to an 18-hole regulation course.

   Revenues decrease under Scenario 2.

2. Facilities with a 9-hole regulation course do not generate more revenues, on average, than facilities with a 9-hole non-regulation course.

   Revenues projected under Scenario 2 may be reasonable for various non-traditional configurations (not just 9-hole).

3. The reported quality of an 18-hole regulation course is higher, on average, than the reported quality of an 18-hole non-regulation course and golf fees are slightly higher (this is also true for 9-hole courses with regards to fees but not quality).

   Green fees are lower on a per-round basis for non-traditional courses in the competitive market area. If perceived quality is lower, the course is less likely to capture as high percentage of visitors. Local golf player rounds may increase (as a percentage of total rounds) under Scenario 2.

4. Economic drivers of number of alternative facilities are per capita income, population density, and average green fees at both traditional courses and nontraditional facilities.

   These variables are likely to have greater impact under Scenario 2 since a greater share of players is likely to be local under this scenario.

5. Food and beverage and merchandise sales tend to increase with number of holes, length of course, and cost of a round at an 18-hole regulation course, and tend to be higher than at 18-hole non-regulation courses. Nine-hole regulation courses have greater merchandise sales than 9-hole non-regulation course.

   Food and beverage, and merchandise sales decrease under Scenario 2.

Table 25: Projected Expenditures by Economic Scenario

Lake Tahoe Golf Course Economic Feasibility Analysis
Projected Expenditures by Economic Scenario

Expenses	Scenario 1		Scenario 2 (Low Rounds)		Scenario 2 (High Rounds)		Scenario 3
	1A - Base Case	1B	Low Fees	High Fees	Low Fees	High Fees	
Cost of Goods							
Merchandise	$108,000	$108,000	$48,900	$48,900	$81,400	$81,400	$0
Food and Beverage - Golf	$62,500	$66,200	$28,300	$28,300	$47,100	$47,100	$0
Food and Beverage - Events	$62,500	$62,500	$62,500	$62,500	$62,500	$62,500	$62,500
Subtotal Cost of Goods	**$233,000**	**$236,700**	**$139,700**	**$139,700**	**$191,000**	**$191,000**	**$62,500**
Payroll							
Golf and Facilities	$60,000	$60,000	$27,100	$27,100	$45,200	$45,200	$0
Carts & Range	$37,000	$42,300	$16,700	$16,700	$27,900	$27,900	$0
Instruction [1]	$4,500	$4,500	$2,300	$2,300	$2,300	$2,300	$0
Course Maintenance	$232,000	$259,300	$191,100	$191,100	$191,100	$191,100	$0
Food and Beverage	$177,000	$177,000	$177,000	$177,000	$177,000	$177,000	$177,000
General and Administrative	$102,000	$107,100	$80,400	$80,400	$87,700	$87,700	$42,900
Subtotal Payroll	**$612,500**	**$650,200**	**$494,600**	**$494,600**	**$531,200**	**$531,200**	**$219,900**
Operating Expenses (including Utilities)							
Golf	$7,000	$7,000	$3,200	$3,200	$5,300	$5,300	$0
Carts & Range	$14,000	$14,000	$6,300	$6,300	$10,600	$10,600	$0
Nike Golf Learning Center	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Nike Golf Membership	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Course Maintenance	$68,000	$61,200	$34,000	$34,000	$34,000	$34,000	$0
Food and Beverage	$18,000	$18,000	$18,000	$18,000	$18,000	$18,000	$18,000
General and Administrative [2]	$87,000	$90,100	$66,100	$66,100	$70,800	$70,800	$28,200
Facilities	$14,000	$14,000	$6,300	$6,300	$10,600	$10,600	$0
Water	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000
Power - irrigation	$18,900	$17,000	$9,500	$9,500	$9,500	$9,500	$0
Power - structures	$23,100	$23,100	$23,100	$23,100	$23,100	$23,100	$23,100
Phone / TV / Internet Providers	$10,000	$10,500	$7,900	$7,900	$8,600	$8,600	$4,200
Solid Waste	$14,000	$14,000	$14,000	$14,000	$14,000	$14,000	$14,000
Subtotal Operating Expenses	**$280,000**	**$274,900**	**$194,400**	**$194,400**	**$210,500**	**$210,500**	**$93,500**
Leases and Rentals, Equipment Replacement							
Carts	$60,000	$60,000	$31,800	$31,800	$31,800	$31,800	$0
Maintenance	$24,000	$26,800	$19,800	$19,800	$19,800	$19,800	$0
Kitchen	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000
Subtotal Leases and Rentals, Equipment Replacement	**$89,000**	**$91,800**	**$56,600**	**$56,600**	**$56,600**	**$56,600**	**$5,000**
Taxes and Insurance							
Property Tax	$65,000	$65,000	$65,000	$65,000	$65,000	$65,000	$65,000
Insurance	$21,000	$21,000	$21,000	$21,000	$21,000	$21,000	$21,000
Other	($7,000)	($7,000)	($7,000)	($7,000)	($7,000)	($7,000)	($7,000)
Subtotal Taxes and Insurance	**$79,000**	**$79,000**	**$79,000**	**$79,000**	**$79,000**	**$79,000**	**$79,000**
Total Estimated Annual Expenses (rounded) [3]	**$1,294,000**	**$1,333,000**	**$964,000**	**$964,000**	**$1,068,000**	**$1,068,000**	**$460,000**

Source: American Golf Corporation and Hansford Economic Consulting

tot exp

[1] Assumes half the number of instructors under scenario 2.
[2] Percentage of payroll, operating expenses, leases and rentals, and equipment replacement.
[3] Some costs associated with winter operations borne by snowmobile operator are not included.

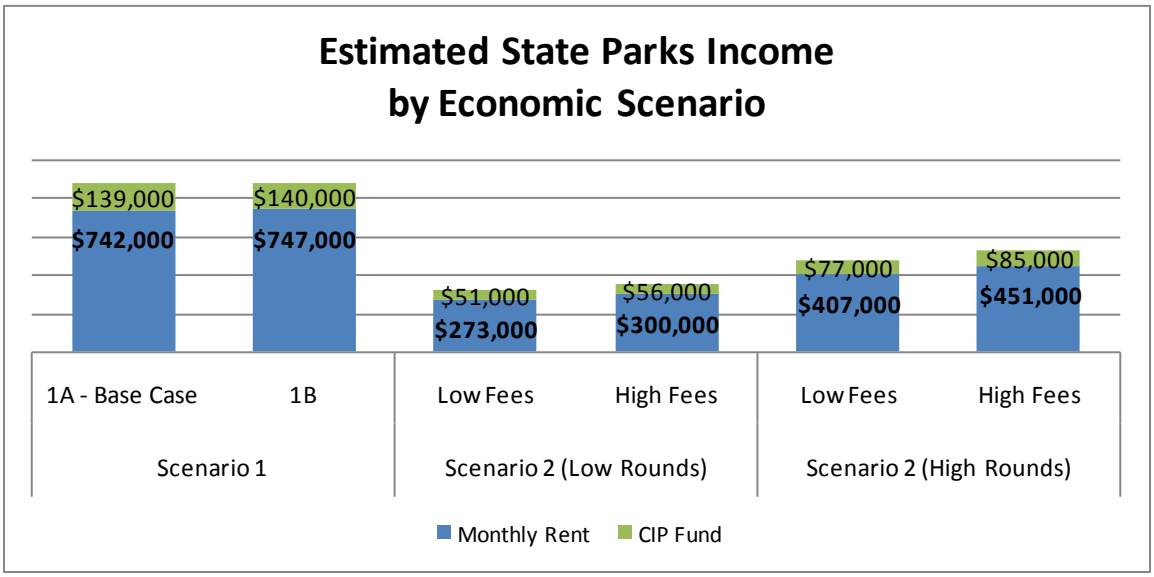
Income Impacts to State Parks and American Golf Corporation

Estimated gross receipts (revenues) determine payments to State Parks. Rent to State Parks and contributions to the CIP fund are deducted from net revenues to estimate net annual concessionaire revenues.

On an annual basis, rent payments to State Parks are estimated to increase from $742,000 to $747,000 under Scenario 1B, and decrease to $451,000 (high end of range) or $273,000 (low end of range) under Scenario 2. The CIP fund would experience a corresponding change, from $139,000 under the Base Case to $140,000 under Scenario 1B, and $85,000 (high end of range) or $51,000 (low end of range) under Scenario 2.

Estimates of revenue to State Parks under each scenario are illustrated in ***Figure 6***.

Figure 6: Estimated Income to State Parks



'Net Annual LTGC Revenues' shown in ***Table 26*** are remaining revenues to American Golf Corporation. Revenues to the concessionaire are projected to decrease from $614,000 under the Base Case to $589,000 under Scenario 1B, and be negative under Scenario 2[13] under all but the most optimistic of circumstances.

Since Scenario 3 is projected to be financially infeasible, there is no estimate of income to State Parks and American Golf Corporation resulting from closure of the golf course.

[13] Revenue estimates are based on LTGC's financial performance 2003 – 2006 which produces a more conservative estimate than using all historical data 1995 – 2006.

Lake Tahoe Golf Course Economic Feasibility Analysis
LTGC Revenues and Expenses by Economic Scenario

Revenue or Expense		Scenario 1		Scenario 2 (Low Rounds)		Scenario 2 (High Rounds)		
		1A - Base Case	1B	Low Fees	High Fees	Low Fees	High Fees	**Scenario 3**
				All Figures Rounded to nearest $1,000				
Revenues (see Table 22)								
Golf Activities	a	$1,992,000	$1,992,000	$517,000	$618,000	$862,000	$1,030,000	$0
Concessions/Other	b	$780,000	$800,000	$493,000	$493,000	$651,000	$651,000	$256,000
Snowmobile Lease Payments	c	$17,000	$17,000	$17,000	$17,000	$17,000	$17,000	$0
Subtotal Revenues	**d = a+b+c**	**$2,789,000**	**$2,809,000**	**$1,027,000**	**$1,128,000**	**$1,530,000**	**$1,698,000**	**$256,000**
Scenario 3 Potential Event Revenues (see Table 23)	e							$131,000
Total Revenues	**f = d+e**	**$2,789,000**	**$2,809,000**	**$1,027,000**	**$1,128,000**	**$1,530,000**	**$1,698,000**	**$387,000**
Expenditures (see Table 25)								
Cost of Goods	g	$233,000	$237,000	$140,000	$140,000	$191,000	$191,000	$63,000
Payroll	h	$613,000	$650,000	$495,000	$495,000	$531,000	$531,000	$220,000
Operating Expenses (including Utilities)	i	$280,000	$275,000	$194,000	$194,000	$211,000	$211,000	$94,000
Leases and Rentals, Equipment Replacement	j	$89,000	$92,000	$57,000	$57,000	$57,000	$57,000	$5,000
Taxes and Insurance	k	$79,000	$79,000	$79,000	$79,000	$79,000	$79,000	$79,000
Total Expenditures	**l= sum(g:k)**	**$1,294,000**	**$1,333,000**	**$965,000**	**$965,000**	**$1,069,000**	**$1,069,000**	**$461,000**
Revenues less Expenditures	**m = f - l**	**$1,495,000**	**$1,476,000**	**$62,000**	**$163,000**	**$461,000**	**$629,000**	**($74,000)**
less Rent to State Parks [2]	n = f*27%	$742,000	$747,000	$273,000	$300,000	$407,000	$451,000	[1]
less Capital Improvement Fund [3]	o = f*5%	$139,000	$140,000	$51,000	$56,000	$77,000	$85,000	[1]
Subtotal Payments to State Parks [4]	**p = n+o**	**$881,000**	**$887,000**	**$324,000**	**$356,000**	**$484,000**	**$536,000**	**$0**
Net Annual LTGC Revenues [5]	**q = m - p**	**$614,000**	**$589,000**	**($262,000)**	**($193,000)**	**($23,000)**	**$93,000**	**($74,000)**

Source: Hansford Economic Consulting

summ

[1] With projected negative financial returns the concessionaire would cease operations.
[2] Average annual rent as a percentage of gross revenues was 27% (see Table 6) between 2003 and 2006.
[3] Per terms of the concessionaire's contract, 5% of gross revenues are paid into a capital improvement fund.
[4] Base Case payments to State Parks does not match Table 5 ($887,339) because of the discontinuation of the Nike Learning Center and rounding of numbers.
[5] Net golf course concessionaire revenues. Net snowmobile operator revenues not evaluated.

SECTION 6: IMPACTS ON THE SOUTH LAKE TAHOE ECONOMY

An additional consideration for the river restoration project is the additional economic impacts of the different project alternatives on the South Shore economy. Additional economic impacts resulting from reconfiguration and operations changes to LTGC include visitor spending elsewhere in South Shore, sales taxes generated both at LTGC and elsewhere in South Shore, transient occupancy taxes, property taxes, and jobs and earnings associated with employment to service visitor needs.

The additional economic impacts estimated in this report are limited to additional direct spending into the local economy. Other multiplier effects, often referred to as 'indirect' and 'induced' effects[14] (or ripple effects) of travel spending on the South Shore economy are not estimated in this report because this would require extensive additional modeling and analysis. In addition, other value-added impacts such as LTGC's contribution to real estate values of surrounding properties, for example, are not estimated.

The total number of visitors generated by LTGC ranges from 3,663 guests (Base Case number of guests for events only) under Scenario 3 to 22,219 visitors under Scenario 1B. *(Note: Scenario 3 was determined to be infeasible in **Section 5**; Scenario 3 in this section portrays the contribution of non-golfer visitors at LTGC currently).* Spending generated by these visitors is estimated to range from $0.9 million under Scenario 3 (excludes golfers) to $7.5 million under Scenario 1B. Visitor spending is estimated to be spread fairly evenly between LTGC, lodging, retail and food and beverage, and less on other recreation.

Total employment generated by LTGC visitors is estimated to range from 44 under Scenario 3 to 172 under Scenario 1B, and associated earnings by employees are estimated to range from $493,000 under Scenario 3 to $2.7 million under Scenario 1B. These model results are summarized in ***Table 27***.

Estimated taxes generated directly by LTGC include sales tax on merchandise and food and beverage sales, and property tax. These taxes range from $82,000 under Scenario 3 to $120,000 under Scenario 1B. Taxes generated elsewhere within the South Shore economy include transient occupancy taxes and sales tax, estimated from $128,000 under Scenario 3 to $495,000 under Scenario 1B. These model results are summarized in ***Table 28***.

[14] Indirect effects refer to the intermediate inputs used to produce the final product or service (that are manufactured in South Shore). Induced effects refer to employee-purchased goods and services attributable to direct and indirect impacts. For example, employees will buy groceries in South Shore using earnings generated by visitors.

Table 27: Visitation, Spending, Earnings and Jobs by Scenario

Lake Tahoe Golf Course Economic Feasibility Analysis
Estimates of Visitation, Spending, Earnings, and Employment Generated by LTGC Visitors

Item	Scenario 1		Scenario 2		Scenario 3
	1A - Base Case	1B	Low Rounds	High Rounds	
Total Estimated Visitation and Spending	Table D-2	Table D-8	Table D-14	Table D-20	Table D-25
Estimated Number of LTGC-generated Visitors	8,942	8,942	5,048	7,192	1,832
Estimated Spending by LTGC-generated Visitors [1]	$7,476,000	$7,476,000	$3,881,000	$5,860,000	$912,000
Estimated Visitor Spending by Category	Table D-3	Table D-9	Table D-15	Table D-21	Table D-26
LTGC	$1,907,920	$1,921,588	$699,833	$1,052,103	$171,520
Lodging	$1,569,960	$1,569,960	$815,010	$1,230,600	$191,520
Other Recreation	$783,440	$769,772	$697,327	$1,057,497	$156,800
Retail	$1,644,720	$1,644,720	$853,820	$1,289,200	$200,640
Food & Beverage	$1,569,960	$1,569,960	$815,010	$1,230,600	$191,520
Total Visitor Spending Estimate	**$7,476,000**	**$7,476,000**	**$3,881,000**	**$5,860,000**	**$912,000**
Estimated Earnings and Employment	Table D-4	Table D-10	Table D-16	Table D-22	Table D-27
Estimated Direct Earnings	$2,666,133	$2,698,792	$1,667,886	$2,297,161	$493,006
Estimated Employment (Jobs)	168	172	113	139	44

Source: Hansford Economic Consulting visitor summ

[1] Estimates are based on the mid-point of a potential range of spending.

Table 28: Sales Tax, Property Tax and Transient Occupancy Taxes by Scenario

Lake Tahoe Golf Course Economic Feasibility Analysis
Estimates of Taxes Directly Generated by LTGC Visitors

Item	Scenario 1		Scenario 2		Scenario 3
	1A - Base Case	1B	Low Rounds	High Rounds	
Estimated Taxes Generated at LTGC	Table D-5	Table D-11	Table D-17	Table D-23	Table D-28
Sales Tax	$53,000	$55,000	$33,000	$45,000	$17,000
Property Tax	$65,000	$65,000	$65,000	$65,000	$65,000
Subtotal LTGC Estimated Taxes	**$118,000**	**$120,000**	**$98,000**	**$110,000**	**$82,000**
Estimated Taxes Generated elsewhere in South Shore	Table D-6	Table D-12	Table D-18	Table D-24	Table D-29
Transient Occupancy Tax	$157,000	$157,000	$82,000	$123,000	$19,000
Sales Tax	$218,000	$218,000	$114,000	$171,000	$27,000
Subtotal Taxes Generated Elsewhere in South Shore	**$375,000**	**$375,000**	**$196,000**	**$294,000**	**$46,000**
Total Estimated Taxes	**$493,000**	**$495,000**	**$294,000**	**$404,000**	**$128,000**
					tax sum

Source: Hansford Economic Consulting

IMPACT ON SOUTH SHORE ECONOMY FINDINGS

- The economic impact of decommissioning LTGC and no longer providing any public services at Lake Valley SRA is approximately $7.5 million in direct visitor spending, and $0.5 million in tax, for a total of $8.0 million. A corresponding loss of about 168 full and part-time jobs in the area currently supported by LTGC visitors is estimated. The loss in earnings associated with these jobs is approximately $2.7 million, which is money no longer re-circulated within the local economy.

- The impact of reducing LTGC to a reduced-play area course is estimated to be between $1.6 million and $3.6 million in visitor spending, and between $89,000 and $199,000 in tax, for a total of $1.7 to $3.8 million. Associated job loss is estimated to be between 29 and 55 jobs with a corresponding loss of $0.4 to $1.0 million in earnings.

- Reconfiguration of the 18-hole regulation course at LTGC is not estimated to affect total visitor spending or total number of jobs in South Shore (outside LTGC); however, it is estimated to increase sales taxes by $2,000.

- The contribution made by non-golfer visitors to LTGC is estimated at $912,000 in direct spending, $128,000 in tax, 44 additional jobs in the economy, and $493,000 in earnings.

DETAILED MODEL ANALYSIS PRESENTED IN APPENDIX D

Estimates of impacts to the South Shore economy are provided in ***Appendix D*** for each economic scenario. Note that economic scenario 2 does not model low fees and high fees as in the other sections of this report because fees do not impact the South Shore economy analysis. The text below describes the analysis methodology and results for the Base Case, and directs the reader to the appropriate tables in ***Appendix D*** for results of modeling economic scenarios 1B, 2 (low rounds and high rounds), and 3.

Number of LTGC Visitor Golfers

Of the total annual average of 33,163 rounds played, approximately 22,219 rounds are made by visitors, and 10,944 rounds are made by locals. Some rounds will be played by visitors on day trips, while others will be made by vacationers or weekend visitors. See ***Appendix Tables D-1, D-7, D-13, and D-19***.

Total visitor rounds are multiplied by percent of rounds played by visitors coming to South Shore specifically to play golf at LTGC (as opposed to playing a round for pleasure while on

vacation for some other reason) as a proxy for the number of LTGC golfers visiting South Shore. To estimate the number of overnight visitors the study estimated that 32% of golf rounds are made by visitors whose primary purpose is to play golf at LTGC on their trip.[15]

The total number of annual golf visitors whose primary purpose during their trip is to play golf at LTGC is estimated at 7,110. See ***Appendix Tables D-2, D-8, D-14, D-20, and D-25***.

LTGC Visitor Spending

Using two estimation methodologies, total estimated visitor spending by LTGC golfers may range between $6.1 and $8.8 million under the Base Case. This estimate only includes additional spending in South Shore; spending by local golfers is not included since they already spend their dollars in South Shore. Spending by second homeowners is included in total visitor spending. Given that the accuracy of the two methods used to estimate this range is uncertain, the study uses the mid-point of the range for purposes of this analysis. The mid-point is $7.5 million under the Base Case and is assumed to include spending by visitors coming to LTGC for events during the winter.

Travel-related spending was estimated to total $630 million in El Dorado County in 2005 (Dean Runyan and Associates, 2007). It has been estimated (RRC Associates, 2006) that South Lake Tahoe captures approximately 70% of travel-related spending in El Dorado County. Using this estimate and inflating to 2007 dollars, approximately $474 million is spent by travelers in the Tahoe portion of El Dorado County. See ***Appendix Tables D-3, D-9, D-15, D-21, and D-26***.

As visitor spending by categories lodging, recreation, retail, and food and beverage is likely to be different in the Tahoe portion of the County, visitor spending by category is adjusted using estimates prepared by Dean Runyan Associates in 2003 for North Lake Tahoe. The contribution of LTGC golfers toward this spending is $7.5 million; by applying the adjusted percentages to the estimated total spending of $7.5 million, and adjusting the recreation category to account for spending on golf at LTGC, the estimate of spending by LTGC visitors is:

- $1.9 million on golf at LTGC,
- $0.8 million on other recreation,
- $1.6 million on lodging,
- $1.6 million on retail goods, and
- $1.6 million on food and beverage.

[15] It has been estimated (SRI International, 2002) that 32% of golf trips are planned with the sole intent of playing golf.

LTGC Generated Earnings and Jobs in South Shore

Based on LTGC visitor spending in South Shore, LTGC visitor golfers are estimated to generate 168 full and part-time jobs, 76 of which at LTGC and 92 elsewhere in the local economy. See ***Appendix Tables D-4, D-10, D-16, D-22, and D-27***.

Earnings generated by visitor golfers to LTGC are estimated at $2.6 million and are comprised of $0.6 million in LTGC payroll and earnings and $2.6 million elsewhere in the local economy, using the El Dorado County average of $22,296 earnings per job. Earnings per job are $8,065 per LTGC job, and $22,296 per job elsewhere in South Shore. The discrepancy in earnings per job is attributable to the many part-time jobs at the golf course because it provides seasonal occupation.

This analysis assumes that local golfers would not generate additional earnings and employees because they would golf at another local course in South Shore if they did not golf at LTGC.

Estimated Taxes Generated by LTGC

Sales taxes are charged for food and beverage consumed at place of sale and all merchandise. Based on data provided by the golf course concessionaire, approximately 85% of food and beverage sales are taxable. Total estimated sales taxes generated are $53,000. Property taxes are paid by the golf course concessionaire for possessory interest of the property. Annual property tax payments are $65,000. LTGC generates a total of approximately $118,000 in property and sales taxes. See ***Appendix Tables D-5, D-11, D-17, D-23, and D-28***.

In addition to taxes generated by economic activity at LTGC, visitors generate additional taxes elsewhere in South Shore. Based on current tax rates additional taxes include $157,000 of transient occupancy tax, $115,000 in sales tax from retail sales (which includes other commodities such as gasoline), and $103,000 in sales tax from food and beverage sales. See ***Appendix Tables D-6, D-12, D-18, D-24, and D-29***.

BIBLIOGRAPHY

California State Parks. (Fiscal Year 2006/07). *Concessions Annual Report.*

California State Parks. *Lake Valley SRA General Plan.*

California State Parks. (July 1, 2006). *Planning Milestones for the Park Units and Major Properties Associated with the California State Parks System.* California State Parks.

Dean Runyan and Associates. (2007). *California Travel Impacts by County 1992-2005.* California Travel and Tourism Commission.

European Golf Course Owners Association. (n.d.). Retrieved from egcoa.com.

Hurdzan, D. M. (1996). *Golf Course Architecture, Design, Costruction and Restoration.*

LSC Consultants. (2006). *Tahoe Intrerregional / Intraregional Transit Study.* Tahoe Regional Planning Agency.

National Golf Foundation. (2006). *A Strategic Perspective on the Future of Golf.*

National Golf Foundation. (n.d.). *Frequently Asked Questions*. Retrieved from ngf.org.

National Golf Foundation. (2007). *Golf Industry Report First Quarter 2007.*

National Golf Foundation. (Second Quarter 2007). *Golf Participation Issue.*

National Golf Foundation. (January 2008). *Inside the Ropes.*

National Golf Foundation. (2001). *Operating and Financial Performance Profiles of 18-hole Golf Facilities.*

National Golf Foundation. (2002). *Operating and Financial Performance Profiles of 18-hole Golf Facilities in the US.*

National Golf Foundation. (2002). *U.S Golf Travel Market.*

RRC Associates. (2006). *City of South Lake Tahoe Retail Market Analysis.*

Sportometrics. (2001). *Alternative Facilities Report to Golf 20/20 Conference Attendees.* Golf 20/20.

SRI International and the World Golf Foundation. (2002). *The Golf Economy Report.* Golf 20/20.

SRI International. (2002). *The Golf Economy Report.*

State of California. (1989, amended 1995). State of California Department of Parks and Recreation Concession Contract American Golf Corporation Lake Tahoe Golf course and Winter Recreation Area Lake Valley State Recreation Area Located In El Dorado County.

Stuller, J. (Summer 2007). *Bringing in the Fees.* Northern California Golf Association.

The Urban Land Institute. (2004). *Dollars and Cents of Shopping.*

www.golf2020.com. (n.d.). Retrieved from golf2020 website.

Zilberman, & Templeton, H. (2000). *Economic Impacts of California's Golf Course Facilities in 2000.*

APPENDIX A

LAKE TAHOE GOLF COURSE HISTORIC FINANCIAL PERFORMANCE

SUPPORT TABLES

Table A-1
Lake Tahoe Golf Course Economic Feasibility Analysis
Monthly LTGC Gross Revenues and Rent Paid to State Parks by Fiscal Year

Date	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07
Gross Revenues													
July	$520,518	$535,404	$581,691	$643,078	$688,313	$696,942	$708,653	$644,595	$643,590	$682,254	$680,663	$663,068	$643,027
August	$471,482	$552,543	$587,434	$651,648	$636,449	$630,473	$653,279	$614,502	$623,793	$626,327	$613,967	$584,236	$575,784
September	$377,756	$415,831	$382,510	$412,146	$433,174	$453,055	$473,795	$415,368	$466,187	$449,594	$450,766	$427,476	$428,643
October	$142,822	$215,853	$201,660	$193,591	$200,199	$222,585	$200,053	$213,900	$189,091	$196,272	$149,123	$175,935	$146,295
November	$5,720	$3,739	$12,305	$8,708	$2,926	$12,931	$2,815	$2,789	$19,993	$11,952	$8,109	$10,054	$11,017
December	$66,567	$33,520	$8,771	$43,032	$37,194	$8,691	$8,087	$5,279	$15,321	$16,303	$21,009	$16,140	$26,523
January	$21,940	$3,783	$9,983	$31,824	$20,710	$720	$33,690	$90,360	$4,991	$9,661	$15,344	$9,576	$9,937
February	$34,875	$20,333	$12,389	$17,964	$27,230	($256)	$35,318	$31,793	$6,533	$20,041	$13,162	$9,918	$6,817
March	$19,273	$27,498	$23,676	$39,290	$27,007	$11,214	$32,844	$5,880	$12,054	$11,141	$16,981	$14,987	$5,186
April	$74,260	$68,524	$121,362	$33,818	$22,346	$75,836	$16,536	$17,042	$9,004	$19,921	$8,055	$5,263	$42,793
May	$167,036	$246,567	$265,193	$174,450	$216,823	$225,857	$213,395	$209,030	$202,947	$223,437	$120,195	$176,341	$165,741
June	$334,946	$383,998	$399,370	$440,620	$463,317	$498,259	$433,362	$444,434	$497,240	$432,193	$411,191	$441,515	$376,244
Total Gross Revenues	**$2,237,195**	**$2,507,594**	**$2,606,342**	**$2,690,169**	**$2,775,688**	**$2,836,307**	**$2,811,827**	**$2,694,971**	**$2,690,744**	**$2,699,096**	**$2,508,565**	**$2,534,510**	**$2,438,007**
Rent Payments to State Parks [1]													
July	$93,693	$133,530	$145,253	$162,083	$172,900	$175,614	$176,055	$160,269	$159,843	$169,905	$166,741	$160,683	$157,150
August	$84,867	$136,930	$146,472	$165,178	$163,126	$158,223	$162,670	$153,521	$153,381	$156,085	$153,301	$142,260	$140,253
September	$67,996	$100,521	$93,595	$101,967	$104,848	$110,234	$111,297	$101,606	$110,377	$109,004	$107,002	$101,062	$104,826
October	$25,708	$49,408	$48,286	$45,289	$46,669	$53,249	$50,720	$50,345	$43,933	$49,372	$35,058	$39,610	$33,437
November	$3,570	$3,570	$3,570	$3,750	$4,805	$3,984	$3,984	$3,984	$3,984	$3,984	$4,538	$4,538	$4,538
December	$11,982	$3,570	$3,570	$4,347	$3,637	$3,984	$3,984	$3,984	$3,984	$3,984	$4,538	$4,538	$4,538
January	$3,949	$3,570	$3,570	$3,570	$3,570	$3,984	$3,984	$9,120	$43,929	$3,984	$4,538	$4,538	$4,538
February	$6,278	$3,570	$3,570	$3,570	$3,570	$3,984	$3,984	$3,984	$59,963	$3,984	$4,538	$0	$4,538
March	$3,570	$5,753	$5,307	$6,653	$4,527	$3,984	$6,114	$3,984	$3,984	$3,984	$4,538	$4,538	$4,538
April	$17,850	$18,649	$31,482	$17,850	$19,921	$19,921	$19,921	$19,921	$19,921	$57,515	$22,690	$22,690	$22,690
May	$30,067	$61,812	$66,589	$43,820	$49,219	$54,747	$49,633	$50,448	$48,661	$56,019	$29,557	$43,042	$40,320
June	$60,290	$95,912	$100,233	$109,899	$113,225	$120,618	$107,027	$109,949	$121,515	$105,405	$97,636	$107,001	$92,265
Total Rent Payments	**$409,820**	**$616,796**	**$651,496**	**$667,977**	**$690,016**	**$712,525**	**$699,373**	**$671,115**	**$773,473**	**$723,224**	**$634,674**	**$634,500**	**$613,632**

Source: California State Parks

revs

[1] Rent excludes payments to the Capital Improvement Fund (5% of gross receipts).

Table A-2
Lake Tahoe Golf Course Economic Feasibility Analysis
Monthly LTGC Gross Revenues and Rent Paid to State Parks by Fiscal Year in 2007 Dollars

Date	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07
Gross Revenues in 2007 Dollars [1]													
July	$731,315	$742,480	$793,144	$860,116	$902,801	$899,038	$888,219	$779,573	$748,951	$774,873	$752,877	$713,615	$667,317
August	$662,421	$766,248	$800,974	$871,580	$834,775	$813,294	$818,814	$743,178	$725,914	$711,354	$679,105	$628,773	$597,533
September	$530,738	$576,661	$521,557	$551,246	$568,157	$584,429	$593,851	$502,345	$542,506	$510,629	$498,590	$460,063	$444,835
October	$200,661	$299,338	$274,966	$258,928	$262,583	$287,129	$250,744	$258,691	$220,047	$222,917	$164,944	$189,347	$151,821
November	$8,037	$5,185	$16,778	$11,647	$3,838	$16,681	$3,528	$3,373	$23,266	$13,575	$8,969	$10,820	$11,433
December	$93,525	$46,485	$11,959	$57,556	$48,784	$11,211	$10,136	$6,384	$17,829	$18,516	$23,237	$17,371	$27,525
January	$30,425	$5,159	$13,352	$41,740	$26,715	$902	$40,744	$105,153	$5,668	$10,686	$16,514	$9,938	$9,937
February	$48,364	$27,724	$16,570	$23,562	$35,126	($321)	$42,714	$36,998	$7,420	$22,167	$14,165	$10,293	$6,817
March	$26,727	$37,494	$31,667	$51,533	$34,838	$14,056	$39,722	$6,842	$13,690	$12,323	$18,275	$15,553	$5,186
April	$102,981	$93,434	$162,322	$44,356	$28,826	$95,052	$19,998	$19,832	$10,227	$22,034	$8,669	$5,462	$42,793
May	$231,641	$336,197	$354,696	$228,810	$279,696	$283,087	$258,079	$243,250	$230,498	$247,142	$129,358	$183,002	$165,741
June	$464,492	$523,587	$534,157	$577,923	$597,667	$624,513	$524,108	$517,192	$564,743	$478,045	$442,536	$458,193	$376,244
Total Gross Revenues	**$3,131,326**	**$3,459,992**	**$3,532,142**	**$3,578,997**	**$3,623,806**	**$3,629,071**	**$3,490,658**	**$3,222,811**	**$3,110,758**	**$3,044,260**	**$2,757,240**	**$2,702,429**	**$2,507,183**
Rent Payments in 2007 Dollars [1]													
July	$131,637	$185,175	$198,054	$216,786	$226,778	$226,538	$220,665	$193,829	$186,010	$192,970	$184,431	$172,932	$163,087
August	$119,236	$189,890	$199,717	$220,925	$213,958	$204,104	$203,890	$185,668	$178,491	$177,274	$169,565	$153,104	$145,551
September	$95,533	$139,400	$127,618	$136,381	$137,520	$142,199	$139,498	$122,882	$128,447	$123,802	$118,354	$108,767	$108,786
October	$36,119	$68,518	$65,839	$60,574	$61,211	$68,690	$63,572	$60,887	$51,125	$56,074	$38,778	$42,629	$34,700
November	$5,016	$4,951	$4,868	$5,016	$6,302	$5,139	$4,994	$4,818	$4,636	$4,525	$5,019	$4,884	$4,709
December	$16,835	$4,951	$4,868	$5,814	$4,770	$5,139	$4,994	$4,818	$4,636	$4,525	$5,019	$4,884	$4,709
January	$5,477	$4,868	$4,775	$4,682	$4,605	$4,994	$4,818	$10,613	$49,893	$4,407	$4,884	$4,709	$4,538
February	$8,705	$4,868	$4,775	$4,682	$4,605	$4,994	$4,818	$4,636	$68,103	$4,407	$4,884	$0	$4,538
March	$4,951	$7,844	$7,098	$8,726	$5,839	$4,994	$7,395	$4,636	$4,525	$4,407	$4,884	$4,709	$4,538
April	$24,754	$25,429	$42,107	$23,412	$25,698	$24,969	$24,092	$23,182	$22,625	$63,617	$24,420	$23,547	$22,690
May	$41,695	$84,282	$89,062	$57,475	$63,491	$68,619	$60,026	$58,707	$55,266	$61,962	$31,810	$44,668	$40,320
June	$83,609	$130,778	$134,062	$144,145	$146,058	$151,181	$129,439	$127,949	$138,011	$116,587	$105,079	$111,043	$92,265
Total Rent Payments	**$573,565**	**$850,952**	**$882,842**	**$888,620**	**$900,836**	**$911,558**	**$868,200**	**$802,626**	**$891,768**	**$814,557**	**$697,127**	**$675,877**	**$630,432**

Source: California State Parks

rents

[1] Adjusted for inflation using the California Consumer Price Index, Urban Wage Earners and Clerical Workers, All Items, Bureau of Labor Statistics.

Table A-3
Lake Tahoe Golf Course Economic Feasibility Analysis
Monthly LTGC Gross Revenues and Rent Paid to State Parks by Calendar Year

Date	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Percent of Annual Revenue
Gross Revenues													
January	$21,940	$3,783	$9,983	$31,824	$20,710	$720	$33,690	$90,360	$4,991	$9,661	$15,344	$9,576	0.8%
February	$34,875	$20,333	$12,389	$17,964	$27,230	($256)	$35,318	$31,793	$6,533	$20,041	$13,162	$9,918	0.7%
March	$19,273	$27,498	$23,676	$39,290	$27,007	$11,214	$32,844	$5,880	$12,054	$11,141	$16,981	$14,987	0.8%
April	$74,260	$68,524	$121,362	$33,818	$22,346	$75,836	$16,536	$17,042	$9,004	$19,921	$8,055	$5,263	1.5%
May	$167,036	$246,567	$265,193	$174,450	$216,823	$225,857	$213,395	$209,030	$202,947	$223,437	$120,195	$176,341	7.7%
June	$334,946	$383,998	$399,370	$440,620	$463,317	$498,259	$433,362	$444,434	$497,240	$432,193	$411,191	$441,515	16.3%
July	$535,404	$581,691	$643,078	$688,313	$696,942	$708,653	$644,595	$643,590	$682,254	$680,663	$663,068	$643,027	24.5%
August	$552,543	$587,434	$651,648	$636,449	$630,473	$653,279	$614,502	$623,793	$626,327	$613,967	$584,236	$575,784	23.1%
September	$415,831	$382,510	$412,146	$433,174	$453,055	$473,795	$415,368	$466,187	$449,594	$450,766	$427,476	$428,643	16.4%
October	$215,853	$201,660	$193,591	$200,199	$222,585	$200,053	$213,900	$189,091	$196,272	$149,123	$175,935	$146,295	7.2%
November	$3,739	$12,305	$8,708	$2,926	$12,931	$2,815	$2,789	$19,993	$11,952	$8,109	$10,054	$11,017	0.3%
December	$33,520	$8,771	$43,032	$37,194	$8,691	$8,087	$5,279	$15,321	$16,303	$21,009	$16,140	$26,523	0.8%
Total Gross Revenues	**$2,409,221**	**$2,525,072**	**$2,784,177**	**$2,736,221**	**$2,802,109**	**$2,858,313**	**$2,661,577**	**$2,756,513**	**$2,715,472**	**$2,640,030**	**$2,461,838**	**$2,488,888**	**100.0%**
Rent Payments to State Parks [1]													
January	$3,949	$3,570	$3,570	$3,570	$3,570	$3,984	$3,984	$9,120	$43,929	$3,984	$4,538	$4,538	1.1%
February	$6,278	$3,570	$3,570	$3,570	$3,570	$3,984	$3,984	$3,984	$59,963	$3,984	$4,538	$0	1.3%
March	$3,570	$5,753	$5,307	$6,653	$4,527	$3,984	$6,114	$3,984	$3,984	$3,984	$4,538	$4,538	0.7%
April	$17,850	$18,649	$31,482	$17,850	$19,921	$19,921	$19,921	$19,921	$19,921	$57,515	$22,690	$22,690	3.6%
May	$30,067	$61,812	$66,589	$43,820	$49,219	$54,747	$49,633	$50,448	$48,661	$56,019	$29,557	$43,042	7.3%
June	$60,290	$95,912	$100,233	$109,899	$113,225	$120,618	$107,027	$109,949	$121,515	$105,405	$97,636	$107,001	15.5%
July	$133,530	$145,253	$162,083	$172,900	$175,614	$176,055	$160,269	$159,843	$169,905	$166,741	$160,683	$157,150	24.1%
August	$136,930	$146,472	$165,178	$163,126	$158,223	$162,670	$153,521	$153,381	$156,085	$153,301	$142,260	$140,253	22.8%
September	$100,521	$93,595	$101,967	$104,848	$110,234	$111,297	$101,606	$110,377	$109,004	$107,002	$101,062	$104,826	15.6%
October	$49,408	$48,286	$45,289	$46,669	$53,249	$50,720	$50,345	$43,933	$49,372	$35,058	$39,610	$33,437	6.8%
November	$3,570	$3,570	$3,750	$4,805	$3,984	$3,984	$3,984	$3,984	$3,984	$4,538	$4,538	$4,538	0.6%
December	$3,570	$3,570	$4,347	$3,637	$3,984	$3,984	$3,984	$3,984	$3,984	$4,538	$4,538	$4,538	0.6%
Total Rent Payments to State Parks	**$549,533**	**$630,013**	**$693,364**	**$681,347**	**$699,320**	**$715,947**	**$664,372**	**$672,907**	**$790,306**	**$702,068**	**$616,188**	**$626,552**	**100.0%**

Source: California State Parks

finances

[1] Rent excludes payments to the Capital Improvement Fund (5% of gross receipts).

Table A-4
Lake Tahoe Golf Course Economic Feasibility Analysis
Monthly LTGC Gross Revenues and Rent Paid to State Parks by Calendar Year in 2007 Dollars

Date	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Percent of Annual Revenue
Gross Revenues in 2007 Dollars [1]													
January	$30,425	$5,159	$13,352	$41,740	$26,715	$902	$40,744	$105,153	$5,668	$10,686	$16,514	$9,938	0.8%
February	$48,364	$27,724	$16,570	$23,562	$35,126	($321)	$42,714	$36,998	$7,420	$22,167	$14,165	$10,293	0.7%
March	$26,727	$37,494	$31,667	$51,533	$34,838	$14,056	$39,722	$6,842	$13,690	$12,323	$18,275	$15,553	0.8%
April	$102,981	$93,434	$162,322	$44,356	$28,826	$95,052	$19,998	$19,832	$10,227	$22,034	$8,669	$5,462	1.6%
May	$231,641	$336,197	$354,696	$228,810	$279,696	$283,087	$258,079	$243,250	$230,498	$247,142	$129,358	$183,002	7.7%
June	$464,492	$523,587	$534,157	$577,923	$597,667	$624,513	$524,108	$517,192	$564,743	$478,045	$442,536	$458,193	16.2%
July	$742,480	$793,144	$860,116	$902,801	$899,038	$888,219	$779,573	$748,951	$774,873	$752,877	$713,615	$667,317	24.4%
August	$766,248	$800,974	$871,580	$834,775	$813,294	$818,814	$743,178	$725,914	$711,354	$679,105	$628,773	$597,533	23.1%
September	$576,661	$521,557	$551,246	$568,157	$584,429	$593,851	$502,345	$542,506	$510,629	$498,590	$460,063	$444,835	16.3%
October	$299,338	$274,966	$258,928	$262,583	$287,129	$250,744	$258,691	$220,047	$222,917	$164,944	$189,347	$151,821	7.3%
November	$5,185	$16,778	$11,647	$3,838	$16,681	$3,528	$3,373	$23,266	$13,575	$8,969	$10,820	$11,433	0.3%
December	$46,485	$11,959	$57,556	$48,784	$11,211	$10,136	$6,384	$17,829	$18,516	$23,237	$17,371	$27,525	0.8%
Total Gross Revenues	**$3,341,027**	**$3,442,972**	**$3,723,836**	**$3,588,863**	**$3,614,650**	**$3,582,583**	**$3,218,909**	**$3,207,780**	**$3,084,108**	**$2,920,120**	**$2,649,506**	**$2,582,905**	**100.0%**
Payments to State Parks in 2007 Dollars [1]													
January	$5,477	$4,868	$4,775	$4,682	$4,605	$4,994	$4,818	$10,613	$49,893	$4,407	$4,884	$4,709	1.1%
February	$8,705	$4,868	$4,775	$4,682	$4,605	$4,994	$4,818	$4,636	$68,103	$4,407	$4,884	$0	1.2%
March	$4,951	$7,844	$7,098	$8,726	$5,839	$4,994	$7,395	$4,636	$4,525	$4,407	$4,884	$4,709	0.7%
April	$24,754	$25,429	$42,107	$23,412	$25,698	$24,969	$24,092	$23,182	$22,625	$63,617	$24,420	$23,547	3.5%
May	$41,695	$84,282	$89,062	$57,475	$63,491	$68,619	$60,026	$58,707	$55,266	$61,962	$31,810	$44,668	7.3%
June	$83,609	$130,778	$134,062	$144,145	$146,058	$151,181	$129,439	$127,949	$138,011	$116,587	$105,079	$111,043	15.5%
July	$185,175	$198,054	$216,786	$226,778	$226,538	$220,665	$193,829	$186,010	$192,970	$184,431	$172,932	$163,087	24.1%
August	$189,890	$199,717	$220,925	$213,958	$204,104	$203,890	$185,668	$178,491	$177,274	$169,565	$153,104	$145,551	22.8%
September	$139,400	$127,618	$136,381	$137,520	$142,199	$139,498	$122,882	$128,447	$123,802	$118,354	$108,767	$108,786	15.6%
October	$68,518	$65,839	$60,574	$61,211	$68,690	$63,572	$60,887	$51,125	$56,074	$38,778	$42,629	$34,700	6.9%
November	$4,951	$4,868	$5,016	$6,302	$5,139	$4,994	$4,818	$4,636	$4,525	$5,019	$4,884	$4,709	0.6%
December	$4,951	$4,868	$5,814	$4,770	$5,139	$4,994	$4,818	$4,636	$4,525	$5,019	$4,884	$4,709	0.6%
Total Rent Payments to State Parks	**$762,074**	**$859,032**	**$927,375**	**$893,664**	**$902,105**	**$897,362**	**$803,490**	**$783,068**	**$897,593**	**$776,553**	**$663,160**	**$650,219**	**100.0%**

Source: California State Parks

finances 07

[1] Adjusted for inflation using the California Consumer Price Index, Urban Wage Earners and Clerical Workers, All Items, Bureau of Labor Statistics.

APPENDIX B

2007 LTGC STATE PARKS SURVEY

QUESTIONNAIRE AND INTERVIEWEE COMMENTS

Please help us with a few questions about your golf play.

This will be used to help understand golfing use of LTGC as CA State Parks considers potential changes in the course to allow for restoration of the Upper Truckee River.

Thank you.

1. In what community/town/city do you live? _____

2. How many times per year do you play at LTGC? _____

3. How many total times per year do play golf? _____

4. Why do you choose LTGC? (check as many as apply: rate 1to x))

- Scenic beauty _____
- Full 18-hole regulation course _____
- Course difficulty _____
- Price _____
- Convenient location _____
- Other? (please note reason) _____

5. If the course changed, would you continue playing (circle yes/no/not sure for each)

-- 18 holes, with some dispersed across the river to west (Y N not sure)

-- Compact 18-hole executive course on clubhouse side of river (Y N not sure)

- 9-hole course on clubhouse side of river (Y N not sure)

6. Have you previously filled out this questionnaire? Y / N

Additional comments

_____

_____

If you would like to be added to the Upper Truckee Restoration Project mailing list, please indicate address below (email preferred)

_____

Table B-1
Lake Tahoe Golf Course Economic Feasibility Analysis
Comments and Suggestions made by Survey Respondents regarding Course Reconfiguration and River Restoration

River Restoration Alternatives	Comments	Suggestions
Keep 18-holes (full course)	Will support modified 18-hole course so long as play is not disrupted	Construct new holes to west of river prior to restoration efforts
	Will not play on the 18 holes on west side if poor design	
	Keep a full course	Help the Lake by taking out Tahoe Keys
	Don't destroy the natural beauty of this course	
	Not in favor of modifying course for stream environment	Divert river to sediment pond at the old Elks Club property
	Leave the course, fix the river banks	
	Ecological improvements should be sufficient to allow existing course to remain	
Executive course (shorter length)	Better as a regulation course, would play less as other	
	Already have an executive course at Tahoe Paradise. Executive courses are of limited appeal.	
No golf course	Doesn't matter; the river will find its own way	
	The land needs protecting	
	Protecting the lake is more important than playing golf	

restore comments

Table B-2
Lake Tahoe Golf Course Economic Feasibility Analysis
Grouped Comments and Suggestions made by Survey Respondents

Comment Groupings	Comments	Suggestions
Golf Course and Facilities	Well managed by friendly staff	
	Beautiful views and a great course	Needs more water hazards
	Club house looks like a barn from Hwy 50	Put the Golf Course Channel in bar area
Price	Only semi-affordable 18-hole course in SLT	Lower rates for locals
	Golf fees too high during poor spring conditions and in the fall	Have a 9-hole rate
	Only affordable course at South Shore	
	Only affordable champion course for the working man	
	Fair price, the only 18-hole course for South Lake unless can afford Edgewood	
Reasons for Playing LTGC	Not much other choice	
	Work in SLT or has a family member who does	
	Tournaments and Company events	
	It's "where the locals play"	
Economic and Other	Brings in huge money to South Shore. Used by so many Californians.	
	A regulation 18-hole course is a major attraction to this area.	
	SLT cannot afford to lose $ to competitive areas for gas, food, rent etc (would happen if golf course goes to 9 holes)	
	The only course of play at Tahoe for a REAL game of golf. Otherwise go to Carson City, Genoa, or Carson Valley, hinder Lake Tahoe economy	
	As a year-round resort destination - needs a public full size 18-hole course. Already have 9-hole and 18-hole executive courses	Winter visitors who are golfers can play in the Carson Valley, as the locals do
	Some locals will sell and move if the course goes away	

APPENDIX C

DESCRIPTIONS OF COMPETITOR COURSES FOR SCENARIOS 1A AND 1B

TAHOE PARADISE

Drive Time from South Lake Tahoe: 8 minutes (2 minutes from LTGC)
Course Length: 4,028 yards

Although Tahoe Paradise is an executive course rather than a regulation course, it is still considered a competitor since it is an 18-hole course in a similar setting and it is the closest to LTGC. The 4,000 yard course is considered an ideal place for beginners to learn the game of golf. The course offers challenging holes bordered by pines and scenic views of Mt. Tallac. Visitors can enjoy a fun round of golf and have lunch in the snack bar. Tahoe Paradise is known locally as the place to hone your game.

EDGEWOOD TAHOE

Drive Time from South Lake Tahoe: 15 minutes
Course Length: 7,532 yards

Set along the shore of Lake Tahoe, Edgewood Tahoe is arguably one of the most scenic golf courses in the Tahoe region. Designed by George Fazio and opened in 1968, Edgewood is rated by Golf Digest Magazine as one of "America's Top Golf Courses". A challenging but fair test of golf for all ability levels, a choice of four sets of tees gives all golfers a course suitable to their game.

Despite Edgewood's relative youth, the golf course has played host to a variety of major golf events. In 1980, the United States Golf Association would host an event in the state of Nevada for the first time. The 55th annual US Public Links Championship came to Lake Tahoe and in 1985 the USGA returned to Edgewood again for the US Senior Open Championship. Most recently, Edgewood has been the annual home of the Celebrity Golf Championship. This fun-filled event features some of the biggest names in sports and television and attracts spectators from all over the country.

GENOA LAKES RESORT (THE LAKES COURSE AND RESORT COURSE)

Drive Time from South Lake Tahoe: 37 minutes
Course Lengths: 7,263 yards (Lakes Course), and
7,358 yards (Resort Course)

The Golf Club at Genoa Lakes was designed by John Harbottle and Peter Jacobsen and opened in 1993. Two miles north, John Harbottle collaborated with Johnny Miller on the design of Sierra

Nevada Golf Ranch which opened in 1998. In 2005, Mario Antioci, the owner of Genoa Lakes Golf Club, joined forces with Monterey Development Group to combine Genoa Lakes Golf Club and Sierra Nevada Golf Ranch, now known as the Genoa Lakes Golf Resort. These two courses are marketed as part of the 'Divine 9'[1], a set of 9 golf courses located in and around the Carson Valley.

Built at the base of the Sierra Nevada Mountain Range, the Lakes Course is a par 72 golf course set amidst a residential neighborhood. The course, designed by Peter Jacobsen and John Harbottle, spans 7,263 yards and offers multiple sets of tees to accommodate players of all skill levels. The facility offers a restaurant, snack bar, banquet facility, and a tennis club in addition to golf. All golf carts have recently been upgraded with GPS technology, ice chests and ball washers.

The Resort Course, formerly Sierra Nevada Golf Ranch, is located 5 minutes from Genoa Lakes Golf Club. The course is set amidst the high county desert of Nevada and offers spectacular views of the Sierra Nevada Mountains as well as the Carson Valley. The golf facility offers a world class practice area as well as a bar, grill, restaurant, banquet and pro shop areas. The Resort Course recently completed a redesign of six holes by Jack Nicklaus to incorporate a variety of challenges through native wetlands with spectacular views of the surrounding mountains[2].

CARSON VALLEY GOLF COURSE

Drive Time from South Lake Tahoe: 43 minutes
Course Length: 6,023 yards

Located two miles south of Gardnerville, Carson Valley Golf Course is the most affordable of the competitive golf courses. Arguably, this course is not in competition with LTGC for the majority of its business, however, it is a viable alternative for locals, especially those with young families, and meets the criteria for a competitive golf course in this study.

The Record Courier voted Carson Valley Golf Course the best of the Carson Valley in 2007. Carson Valley is a registered Family Course with a set of tees that the whole family can play off to avoid problems with pace of play. The cool rush of the Carson River, the natural shade of our century old cottonwood trees, and the longest golfing season in the area give this course a unique character unlike anywhere in Northern Nevada[3]. The facility hosts men's, ladies, couples, and seniors golf leagues and can be reserved for events and tournaments. Facilities include a putting green, practice facility, grill and pro shop.

[1] www.divine9.com
[2] NCGA article by Larry Windsor, 'Coming of Age'.
[3] www.carsonvalleygolf.com

INCLINE VILLAGE – CHAMPIONSHIP COURSE

Drive Time from South Lake Tahoe: 50 minutes
Course Length: 6,932 yards

This par 72 championship course stretches over 7,000 yards from the back tees and carries a course rating of 74.1, a true test of your game in a spectacular mountain setting. The property has been described by renowned golf course architect Robert Trent Jones, Sr. as the ideal mountain layout with a challenge you won't want to miss and views you will never forget. Completely renovated in 2003/2004, the courses offers tightly cut fairways bordered by towering pines, demanding accuracy as well as distance.

The course offers a world class practice facility, 18 holes of golf, a banquet and dining facility and the new 23,000 square foot clubhouse known as the Chateau. Visitors to the property can bask in breathtaking scenery and enjoy five star service and facilities.

INCLINE VILLAGE – MOUNTAIN COURSE

Drive Time from South Lake Tahoe: 55 minutes
Course Length: 3,519 yards

The Mountain Course is touted as "The Locals Favorite", with unforgettable views of Lake Tahoe. This alternative golf facility has 18 holes of which 14 are par 3 and 4 are par 4.
With spectacular green sites and contours, the Mountain Course demands more accuracy than distance. "Shot making" skills are necessary to navigate the terrain. Tournaments and group events are welcome at the course. Facilities include a very large practice green. The Mountain Course has been named one of the top ten short courses in America in multiple years by Golf Range magazine[4].

[4] www.golfincline.com

APPENDIX D

LTGC ECONOMIC IMPACTS ON SOUTH LAKE TAHOE

SUPPORT TABLES

Table D-1
Lake Tahoe Golf Course Economic Feasibility Analysis
Estimated Number of Golfers arriving by Auto at LTGC

Scenario 1A - Base Case

LTGC Visitors	Percent of Total Summer Visitation	Percent of Visitors by Auto	Percent of Total Visitors arriving by Auto	Calculation	LTGC Rounds Played	Percent of Total Rounds
Origination of Visitors to South Lake Tahoe in Summer						
Bay Area	22%	87%	19%			
Southern California	19%	70%	13%			
Central California	15%	83%	13%			
Other and Out of State	44%	58%	25%			
Total	**100%**		**70%**	**a = 70%**		
Total Rounds Played at Lake Tahoe Golf Course				**b**	**33,163**	
Estimated Rounds Played by Visitors				c = b*67%	22,219	67%
Estimated Rounds Played by Locals				d = b*33%	10,944	33%
Total Rounds Played					**33,163**	**100%**
Estimated LTGC Visitor Golfers arriving by Auto				**e = a*c**	**15,651**	

Source: Hansford Economic Consulting and Tahoe Interregional/Intraregional Transit Study, prepared by LSC transportation consultants, 2006.

visit shore

Table D-2
Lake Tahoe Golf Course Economic Feasibility Analysis
Estimated South Shore Total Direct Spending by LTGC Visitors

Scenario 1A - Base Case

LTGC Visitors	Rounds of Golf at LTGC	Percent of Rounds for Golf Trip [1]	Total Estimated LTGC Visitors	*Percent of Visitors*	Average Daily Spending (per person) [2]	Average Length of Stay (in Days) [3]	Estimated Total Direct Spending
	a	*b*	*c*		d	e	f = c*d*e
Golfers [4]							
Method A	(See Table D-1)						
Golfers arriving by Air or Charter Bus	6,568	32%	2,102	*24%*	$229	5.60	$2,698,247
Golfers arriving by Auto [5]	15,651	32%	5,008	*56%*	$161	3.10	$2,493,350
Total Estimated LTGC Visitor Golfers	**22,219**		**7,110**	***80%***			**$5,191,597**
Method B							
Average Spending per Person per Golf Trip (assumes no repeat trips) [6]			**7,110**		$1,116		**$7,936,222**
Non-Golfers							
Estimated LTGC Non-golfer Visitors (Events Only) [5],[7]			**1,832**	*20%*	$161	3.10	$911,784
Total Estimated LTGC Visitors			**8,942**	***100%***			
Range of Direct Spending						$6,103,381 to	$8,848,007
Estimated Mid-point (rounded) [8]							**$7,476,000**

Source: Hansford Economic Consulting, Dean Runyan and Associates, and Golf 20/20

ltgc spend

[1] Average daily spending estimated by Dean Runyan and Associates for North Lake Tahoe, 2003 inflated to 2007 dollars.
[2] Length of stay based on survey data for North Lake Tahoe, as utilized by Dean Runyan and Associates for the North Lake Tahoe Resort Association in 2003.
[3] The Golf Economy Report, 2002 conducted by SRI International estimates 32% of golf trips are planned with the sole intent of playing golf.
[4] Visitors whose primary purpose of visiting South Shore is to play golf at LTGC.
[5] Spending per visitor and length of stay reflects a mixture of overnight and day-trip visitors.
[6] On average, golf travelers spent $851 per person per trip in 1998, according to a NGF survey (reported by Golf 20/20). Inflated to 2007 $s in table.
[7] Number of events-only visitors to LTGC estimated by taking 50% of the total number of events guests (precise number of events visitors that are locals is unknown).
[8] Given that the accuracy of either method is unknown, the mid-point is used. This estimate includes spending by visitors for events during winter.

Table D-3
Lake Tahoe Golf Course Economic Feasibility Analysis
Estimated LTGC Visitor Spending by Category

Scenario 1A - Base Case

LTGC Visitor Spending	Estimated Share of Spending					Total Visitor Spending
	LTGC [1]	Lodging	Other Recreation	Retail	Food & Beverage	
El Dorado County Visitor Spending 2005		$156,900,000	$125,600,000	$179,200,000	$167,700,000	**$629,300,000**
El Dorado County Visitor Spending Inflated to 2007 $s		**$168,860,614**	**$135,174,590**	**$192,860,561**	**$180,483,907**	**$677,272,049**
Percent of El Dorado County Visitor Spending		*25%*	*20%*	*28%*	*27%*	*100%*
Tahoe Portion at 70% of El Dorado County Visitor Spending [2]		**$118,202,430**	**$94,622,213**	**$135,002,393**	**$126,338,735**	**$474,090,434**
Adjustments to Tahoe Portion [3]		21%	36%	22%	21%	100%
Adjusted Tahoe Portion of El Dorado County Visitor Spending		**$99,558,991**	**$170,672,556**	**$104,299,896**	**$99,558,991**	**$474,090,434**
Estimated Spending by LTGC Visitors	**$1,907,920**	**$1,569,960**	**$783,440**	**$1,644,720**	**$1,569,960**	**$7,476,000**
Percent of LTGC Visitor Spending	*26%*	*21%*	*10%*	*22%*	*21%*	*100%*

Source: Hansford Economic Consulting, Dean Runyan and Associates, and RRC Associates

visitor spend

[1] Visitor spending at LTGC calculated as 67% of golf activities revenues, 95% of merchandise, 67% of food and beverage, and 67% of other revenues (percentages are HEC estimates).

[2] In 2006, RRC Associates estimated visitor spending in the Tahoe portion of El Dorado County to be approximately 70% of the County total visitor spending.

[3] Based on findings of the 'Economic Significance of Travel to the North Lake Tahoe Area' by Dean Runyan Associates, 2003.

Table D-4
Lake Tahoe Golf Course Economic Feasibility Analysis
Estimated Earnings and Employment in South Shore Generated by LTGC

Scenario 1A - Base Case

Earnings and Employment	Direct Spending	Earnings	Employment (Jobs) [1]
Assumptions			
El Dorado County Visitor Spending, Earnings and Employment Estimates (2005)	$629,300,000	$232,100,000	10,410
Average Earnings per Job			$22,296
Jobs per $1 Million Dollars of Direct Spending			17
Estimates of Jobs and Earnings			
Payroll and Jobs at LTGC	$1,907,920	$612,500	76
Estimated South Shore Earnings and Jobs Generated by LTGC (2007 $s)	$5,568,080	$2,053,633	92
Total Estimates of Spending, Earnings, and Jobs Generated in South Shore by LTGC Visitors (2007 $s)	**$7,476,000**	**$2,666,133**	**168**

Source: Hansford Economic Consulting and Dean Runyan Associates

job gen

[1] Number of jobs includes full and part-time jobs.

Table D-5
Lake Tahoe Golf Course Economic Feasibility Analysis
Estimate of Annual Property and Sales Taxes Generated by LTGC

Scenario 1A - Base Case

LTGC Generated Tax	Sales Revenue	Percent Taxable [1]	Tax Rate	Estimated Total Sales Tax
Estimated Sales Taxes				
Merchandise	$181,000	100%	7.75%	$14,000
Food and Beverage	$599,000	85%	7.75%	$39,000
Subtotal Sales (rounded)	**$780,000**			**$53,000**
Property Taxes (rounded)				$65,000
Total Estimated Annual Sales and Property Taxes (rounded)				**$118,000**

Source: Hansford Economic Consulting, American Golf Corporation, and CA Board of Equalization

taxes

[1] HEC estimate.

Table D-6
Lake Tahoe Golf Course Economic Feasibility Analysis
Estimated Additional Taxes Generated by LTGC Visitors

Scenario 1A - Base Case

Estimated Taxes	Lodging	Other Recreation	Retail	Food & Beverage	**Non-LTGC Spending**
Non-LTGC Visitor Spending by LTGC Visitors (rounded)	$1,570,000	$783,000	$1,645,000	$1,570,000	**$5,568,000**
Tax Type	*Transient Occupancy Tax*	*various*	*Sales Tax*	*Sales Tax*	
Tax Factor [1]	10.00%		7.75%	7.75%	
Percentage of Total Taxed [2]	100%	n.a.	90%	85%	
Estimated Taxes by Category (rounded)	**$157,000**	**n.a.**	**$115,000**	**$103,000**	**$375,000**

Source: Hansford Economic Consulting, City of South Lake Tahoe, and RRC Associates

other taxes

[1] This estimate excludes a potential additional 2% Transient Occupancy Tax at certain redevelopment sites. It also excludes the South Lake Tahoe Tourism Improvement District Fee of $2.00 per night for hotels/motels and $3.00 per night for vacation rentals and timeshares.

[2] HEC estimate based on RRC Associates "Share of Taxable Sales Analysis" prepared for the City of South Lake Tahoe, 2006.

Table D-7
Lake Tahoe Golf Course Economic Feasibility Analysis
Estimated Number of Golfers arriving by Auto at LTGC

Scenario 1B

LTGC Visitors	Percent of Total Summer Visitation	Percent of Visitors by Auto	Percent of Total Visitors arriving by Auto	Calculation	LTGC Rounds Played	Percent of Total Rounds
Origination of Visitors to South Lake Tahoe in Summer						
Bay Area	22%	87%	19%			
Southern California	19%	70%	13%			
Central California	15%	83%	13%			
Other and Out of State	44%	58%	25%			
Total	**100%**		**70%**	**a = 70%**		
Total Rounds Played at Lake Tahoe Golf Course				**b**	**33,163**	
Estimated Rounds Played by Visitors				c = b*67%	22,219	67%
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Total Rounds Played					**33,163**	**100%**
Estimated LTGC Visitor Golfers arriving by Auto				**e = a*c**	**15,651**	

Source: Hansford Economic Consulting and Tahoe Interregional/Intraregional Transit Study, prepared by LSC transportation consultants, 2006.

visit shore

Table D-8
Lake Tahoe Golf Course Economic Feasibility Analysis
Estimated South Shore Total Direct Spending by LTGC Visitors

Scenario 1B

LTGC Visitors	Rounds of Golf at LTGC	Percent of Rounds for Golf Trip [1]	Total Estimated LTGC Visitors	*Percent of Visitors*	Average Daily Spending (per person) [2]	Average Length of Stay (in Days) [3]	Estimated Total Direct Spending
	a	*b*	*c*		d	e	f = c*d*e
Golfers [4]							
Method A	(See Table D-7)						
Golfers arriving by Air or Charter Bus	6,568	32%	2,102	*24%*	$229	5.60	$2,698,247
Golfers arriving by Auto [5]	15,651	32%	5,008	*56%*	$161	3.10	$2,493,350
Total Estimated LTGC Visitor Golfers	**22,219**		**7,110**	***80%***			**$5,191,597**
Method B							
Average Spending per Person per Golf Trip (assumes no repeat trips) [6]			**7,110**		$1,116		**$7,936,222**
Non-Golfers							
Estimated LTGC Non-golfer Visitors (Events Only) [5],[7]			**1,832**	*20%*	$161	3.10	$911,784
Total Estimated LTGC Visitors			**8,942**	***100%***			
Range of Direct Spending						$6,103,381 to	$8,848,007
Estimated Mid-point (rounded) [8]							**$7,476,000**

Source: Hansford Economic Consulting, Dean Runyan and Associates, and Golf 20/20

ltgc spend

[1] Average daily spending estimated by Dean Runyan and Associates for North Lake Tahoe, 2003 inflated to 2007 dollars.
[2] Length of stay based on survey data for North Lake Tahoe, as utilized by Dean Runyan and Associates for the North Lake Tahoe Resort Association in 2003.
[3] The Golf Economy Report, 2002 conducted by SRI International estimates 32% of golf trips are planned with the sole intent of playing golf.
[4] Visitors whose primary purpose of visiting South Shore is to play golf at LTGC.
[5] Spending per visitor and length of stay reflects a mixture of overnight and day-trip visitors.
[6] On average, golf travelers spent $851 per person per trip in 1998, according to a NGF survey (reported by Golf 20/20). Inflated to 2007 $s in table.
[7] Number of events-only visitors to LTGC estimated by taking 50% of the total number of events guests (precise number of events visitors that are locals is unknown).
[8] Given that the accuracy of either method is unknown, the mid-point is used. This estimate includes spending by visitors for events during winter.

Table D-9
Lake Tahoe Golf Course Economic Feasibility Analysis
Estimated LTGC Visitor Spending by Category

Scenario 1B

LTGC Visitor Spending	Estimated Share of Spending					Total Visitor Spending
	LTGC [1]	Lodging	Other Recreation	Retail	Food & Beverage	
El Dorado County Visitor Spending 2005		$156,900,000	$125,600,000	$179,200,000	$167,700,000	**$629,300,000**
El Dorado County Visitor Spending Inflated to 2007 $s		**$168,860,614**	**$135,174,590**	**$192,860,561**	**$180,483,907**	**$677,272,049**
Percent of El Dorado County Visitor Spending		*25%*	*20%*	*28%*	*27%*	*100%*
Tahoe Portion at 70% of El Dorado County Visitor Spending [2]		**$118,202,430**	**$94,622,213**	**$135,002,393**	**$126,338,735**	**$474,090,434**
Adjustments to Tahoe Portion [3]		21%	36%	22%	21%	100%
Adjusted Tahoe Portion of El Dorado County Visitor Spending		**$99,558,991**	**$170,672,556**	**$104,299,896**	**$99,558,991**	**$474,090,434**
Estimated Spending by LTGC Visitors	**$1,921,588**	**$1,569,960**	**$769,772**	**$1,644,720**	**$1,569,960**	**$7,476,000**
Percent of LTGC Visitor Spending	*26%*	*21%*	*10%*	*22%*	*21%*	*100%*

Source: Hansford Economic Consulting, Dean Runyan and Associates, and RRC Associates

visitor spend

[1] Visitor spending at LTGC calculated as 67% of golf activities revenues, 95% of merchandise, 67% of food and beverage, and 67% of other revenues (percentages are HEC estimates).

[2] In 2006, RRC Associates estimated visitor spending in the Tahoe portion of El Dorado County to be approximately 70% of the County total visitor spending.

[3] Based on findings of the 'Economic Significance of Travel to the North Lake Tahoe Area' by Dean Runyan Associates, 2003.

Table D-10
Lake Tahoe Golf Course Economic Feasibility Analysis
Estimated Earnings and Employment in South Shore Generated by LTGC

Scenario 1B

Earnings and Employment	Direct Spending	Earnings	Employment (Jobs) [1]
Assumptions			
El Dorado County Visitor Spending, Earnings and Employment Estimates (2005)	$629,300,000	$232,100,000	10,410
Average Earnings per Job			$22,296
Jobs per $1 Million Dollars of Direct Spending			17
Estimates of Jobs and Earnings			
Payroll and Jobs at LTGC	$1,921,588	$650,200	80
Estimated South Shore Earnings and Jobs Generated by LTGC (2007 $s)	$5,554,412	$2,048,592	92
Total Estimates of Spending, Earnings, and Jobs Generated in South Shore by LTGC Visitors (2007 $s)	**$7,476,000**	**$2,698,792**	**172**

Source: Hansford Economic Consulting and Dean Runyan Associates

job gen

[1] Number of jobs includes full and part-time jobs.

Table D-11
Lake Tahoe Golf Course Economic Feasibility Analysis
Estimate of Annual Property and Sales Taxes Generated by LTGC

Scenario 1B

LTGC Generated Tax	Sales Revenue	Percent Taxable [1]	Tax Rate	Estimated Total Sales Tax
Estimated Sales Taxes				
Merchandise	$181,000	100%	7.75%	$14,000
Food and Beverage	$619,400	85%	7.75%	$41,000
Subtotal Sales (rounded)	**$800,000**			**$55,000**
Property Taxes (rounded)				$65,000
Total Estimated Annual Sales and Property Taxes (rounded)				**$120,000**

Source: Hansford Economic Consulting, American Golf Corporation, and CA Board of Equalization

taxes

[1] HEC estimate.

Table D-12
Lake Tahoe Golf Course Economic Feasibility Analysis
Estimated Additional Taxes Generated by LTGC Visitors

Scenario 1B

Estimated Taxes	Lodging	Other Recreation	Retail	Food & Beverage	**Non-LTGC Spending**
Non-LTGC Visitor Spending by LTGC Visitors (rounded)	$1,570,000	$770,000	$1,645,000	$1,570,000	**$5,555,000**
Tax Type	*Transient Occupancy Tax*	*various*	*Sales Tax*	*Sales Tax*	
Tax Factor [1]	10.00%		7.75%	7.75%	
Percentage of Total Taxed [2]	100%	n.a.	90%	85%	
Estimated Taxes by Category (rounded)	**$157,000**	**n.a.**	**$115,000**	**$103,000**	**$375,000**

Source: Hansford Economic Consulting, City of South Lake Tahoe, and RRC Associates

other taxes

[1] This estimate excludes a potential additional 2% Transient Occupancy Tax at certain redevelopment sites. It also excludes the South Lake Tahoe Tourism Improvement District Fee of $2.00 per night for hotels/motels and $3.00 per night for vacation rentals and timeshares.

[2] HEC estimate based on RRC Associates "Share of Taxable Sales Analysis" prepared for the City of South Lake Tahoe, 2006.

Table D-13
Lake Tahoe Golf Course Economic Feasibility Analysis
Estimated Number of Golfers arriving by Auto at LTGC

Scenario 2 - Low Rounds

LTGC Visitors	Percent of Total Summer Visitation	Percent of Visitors by Auto	Percent of Total Visitors arriving by Auto	Calculation	LTGC Rounds Played	Percent of Total Rounds
Origination of Visitors to South Lake Tahoe in Summer						
Bay Area	22%	87%	19%			
Southern California	19%	70%	13%			
Central California	15%	83%	13%			
Other and Out of State	44%	58%	25%			
Total	**100%**		**70%**	**a = 70%**		
Total Rounds Played at Lake Tahoe Golf Course				**b**	**15,000**	
Estimated Rounds Played by Visitors				c = b*67%	10,050	67%
Estimated Rounds Played by Locals				d = b*33%	4,950	33%
Total Rounds Played					**15,000**	**100%**
Estimated LTGC Visitor Golfers arriving by Auto				**e = a*c**	**7,079**	

Source: Hansford Economic Consulting and Tahoe Interregional/Intraregional Transit Study, prepared by LSC transportation consultants, 2006.

visit shore

Table D-14
Lake Tahoe Golf Course Economic Feasibility Analysis
Estimated South Shore Total Direct Spending by LTGC Visitors

Scenario 2 - Low Rounds

LTGC Visitors	Rounds of Golf at LTGC	Percent of Rounds for Golf Trip [1]	Total Estimated LTGC Visitors	*Percent of Visitors*	Average Daily Spending (per person) [2]	Average Length of Stay (in Days) [3]	Estimated Total Direct Spending
	a	*b*	*c*		d	e	f = c*d*e
Golfers [4]							
Method A	(See Table D-13)						
Golfers arriving by Air or Charter Bus	2,971	32%	951	*19%*	$229	5.60	$1,220,448
Golfers arriving by Auto [5]	7,079	32%	2,265	*45%*	$161	3.10	$1,127,770
Total Estimated LTGC Visitor Golfers	**10,050**		**3,216**	***64%***			**$2,348,218**
Method B							
Average Spending per Person per Golf Trip (assumes no repeat trips) [6]			**3,216**		$1,116		**$3,589,643**
Non-Golfers							
Estimated LTGC Non-golfer Visitors (Events Only) [5],[7]			**1,832**	*36%*	$161	3.10	$911,784
Total Estimated LTGC Visitors			**5,048**	***100%***			
Range of Direct Spending						$3,260,002 to	$4,501,428
Estimated Mid-point (rounded) [8]							**$3,881,000**

Source: Hansford Economic Consulting, Dean Runyan and Associates, and Golf 20/20

ltgc spend

[1] Average daily spending estimated by Dean Runyan and Associates for North Lake Tahoe, 2003 inflated to 2007 dollars.
[2] Length of stay based on survey data for North Lake Tahoe, as utilized by Dean Runyan and Associates for the North Lake Tahoe Resort Association in 2003.
[3] The Golf Economy Report, 2002 conducted by SRI International estimates 32% of golf trips are planned with the sole intent of playing golf.
[4] Visitors whose primary purpose of visiting South Shore is to play golf at LTGC.
[5] Spending per visitor and length of stay reflects a mixture of overnight and day-trip visitors.
[6] On average, golf travelers spent $851 per person per trip in 1998, according to a NGF survey (reported by Golf 20/20). Inflated to 2007 $s in table.
[7] Number of events-only visitors to LTGC estimated by taking 50% of the total number of events guests (precise number of events visitors that are locals is unknown).
[8] Given that the accuracy of either method is unknown, the mid-point is used. This estimate includes spending by visitors for events during winter.

Table D-15
Lake Tahoe Golf Course Economic Feasibility Analysis
Estimated LTGC Visitor Spending by Category

Scenario 2 - Low Rounds

LTGC Visitor Spending	Estimated Share of Spending					Total Visitor Spending
	LTGC [1]	Lodging	Other Recreation	Retail	Food & Beverage	
El Dorado County Visitor Spending 2005		$156,900,000	$125,600,000	$179,200,000	$167,700,000	**$629,300,000**
El Dorado County Visitor Spending Inflated to 2007 $s		**$168,860,614**	**$135,174,590**	**$192,860,561**	**$180,483,907**	**$677,272,049**
Percent of El Dorado County Visitor Spending		*25%*	*20%*	*28%*	*27%*	*100%*
Tahoe Portion at 70% of El Dorado County Visitor Spending [2]		**$118,202,430**	**$94,622,213**	**$135,002,393**	**$126,338,735**	**$474,090,434**
Adjustments to Tahoe Portion [3]		21%	36%	22%	21%	100%
Adjusted Tahoe Portion of El Dorado County Visitor Spending		**$99,558,991**	**$170,672,556**	**$104,299,896**	**$99,558,991**	**$474,090,434**
Estimated Spending by LTGC Visitors	**$699,833**	**$815,010**	**$697,327**	**$853,820**	**$815,010**	**$3,881,000**
Percent of LTGC Visitor Spending	*18%*	*21%*	*18%*	*22%*	*21%*	*100%*

Source: Hansford Economic Consulting, Dean Runyan and Associates, and RRC Associates

visitor spend

[1] Visitor spending at LTGC calculated as 67% of golf activities revenues, 95% of merchandise, 67% of food and beverage, and 67% of other revenues (percentages are HEC estimates).

[2] In 2006, RRC Associates estimated visitor spending in the Tahoe portion of El Dorado County to be approximately 70% of the County total visitor spending.

[3] Based on findings of the 'Economic Significance of Travel to the North Lake Tahoe Area' by Dean Runyan Associates, 2003.

Table D-16
Lake Tahoe Golf Course Economic Feasibility Analysis
Estimated Earnings and Employment in South Shore Generated by LTGC

Scenario 2 - Low Rounds

Earnings and Employment	Direct Spending	Earnings	Employment (Jobs) [1]
Assumptions			
El Dorado County Visitor Spending, Earnings and Employment Estimates (2005)	$629,300,000	$232,100,000	10,410
Average Earnings per Job			$22,296
Jobs per $1 Million Dollars of Direct Spending			17
Estimates of Jobs and Earnings			
Payroll and Jobs at LTGC	$699,833	$494,600	60
Estimated South Shore Earnings and Jobs Generated by LTGC (2007 $s)	$3,181,167	$1,173,286	53
Total Estimates of Spending, Earnings, and Jobs Generated in South Shore by LTGC Visitors (2007 $s)	**$3,881,000**	**$1,667,886**	**113**

Source: Hansford Economic Consulting and Dean Runyan Associates

job gen

[1] Number of jobs includes full and part-time jobs.

Table D-17
Lake Tahoe Golf Course Economic Feasibility Analysis
Estimate of Annual Property and Sales Taxes Generated by LTGC

Scenario 2 - Low Rounds

LTGC Generated Tax	Sales Revenue	Percent Taxable [1]	Tax Rate	Estimated Total Sales Tax
Estimated Sales Taxes				
Merchandise	$81,900	100%	7.75%	$6,000
Food and Beverage	$411,100	85%	7.75%	$27,000
Subtotal Sales (rounded)	**$493,000**			**$33,000**
Property Taxes (rounded)				$65,000
Total Estimated Annual Sales and Property Taxes (rounded)				**$98,000**

Source: Hansford Economic Consulting, American Golf Corporation, and CA Board of Equalization

taxes

[1] HEC estimate.

Table D-18
Lake Tahoe Golf Course Economic Feasibility Analysis
Estimated Additional Taxes Generated by LTGC Visitors

Scenario 2 - Low Rounds

Estimated Taxes	Lodging	Other Recreation	Retail	Food & Beverage	**Non-LTGC Spending**
Non-LTGC Visitor Spending by LTGC Visitors (rounded)	$815,000	$697,000	$854,000	$815,000	**$3,181,000**
Tax Type	*Transient Occupancy Tax*	*various*	*Sales Tax*	*Sales Tax*	
Tax Factor [1]	10.00%		7.75%	7.75%	
Percentage of Total Taxed [2]	100%	n.a.	90%	85%	
Estimated Taxes by Category (rounded)	**$82,000**	**n.a.**	**$60,000**	**$54,000**	**$196,000**

Source: Hansford Economic Consulting, City of South Lake Tahoe, and RRC Associates

other taxes

[1] This estimate excludes a potential additional 2% Transient Occupancy Tax at certain redevelopment sites. It also excludes the South Lake Tahoe Tourism Improvement District Fee of $2.00 per night for hotels/motels and $3.00 per night for vacation rentals and timeshares.

[2] HEC estimate based on RRC Associates "Share of Taxable Sales Analysis" prepared for the City of South Lake Tahoe, 2006.

Table D-19
Lake Tahoe Golf Course Economic Feasibility Analysis
Estimated Number of Golfers arriving by Auto at LTGC

Scenario 2 - High Rounds

LTGC Visitors	Percent of Total Summer Visitation	Percent of Visitors by Auto	Percent of Total Visitors arriving by Auto	Calculation	LTGC Rounds Played	Percent of Total Rounds
Origination of Visitors to South Lake Tahoe in Summer						
Bay Area	22%	87%	19%			
Southern California	19%	70%	13%			
Central California	15%	83%	13%			
Other and Out of State	44%	58%	25%			
Total	**100%**		**70%**	**a = 70%**		
Total Rounds Played at Lake Tahoe Golf Course				**b**	**25,000**	
Estimated Rounds Played by Visitors				c = b*67%	16,750	67%
Estimated Rounds Played by Locals				d = b*33%	8,250	33%
Total Rounds Played					**25,000**	**100%**
Estimated LTGC Visitor Golfers arriving by Auto				**e = a*c**	**11,799**	

Source: Hansford Economic Consulting and Tahoe Interregional/Intraregional Transit Study, prepared by LSC transportation consultants, 2006.

visit shore

Table D-20
Lake Tahoe Golf Course Economic Feasibility Analysis
Estimated South Shore Total Direct Spending by LTGC Visitors

Scenario 2 - High Rounds

LTGC Visitors	Rounds of Golf at LTGC	Percent of Rounds for Golf Trip [1]	Total Estimated LTGC Visitors	*Percent of Visitors*	Average Daily Spending (per person) [2]	Average Length of Stay (in Days) [3]	Estimated Total Direct Spending
	a	*b*	*c*		d	e	f = c*d*e
Golfers [4]							
Method A	(See Table D-19)						
Golfers arriving by Air or Charter Bus	4,951	32%	1,584	*22%*	$229	5.60	$2,034,080
Golfers arriving by Auto [5]	11,799	32%	3,776	*53%*	$161	3.10	$1,879,617
Total Estimated LTGC Visitor Golfers	**16,750**		**5,360**	***75%***			**$3,913,697**
Method B							
Average Spending per Person per Golf Trip (assumes no repeat trips) [6]			**5,360**		$1,116		**$5,982,739**
Non-Golfers							
Estimated LTGC Non-golfer Visitors (Events Only) [5],[7]			**1,832**	*25%*	$161	3.10	$911,784
Total Estimated LTGC Visitors			**7,192**	***100%***			
Range of Direct Spending						$4,825,481 to	$6,894,523
Estimated Mid-point (rounded) [8]							**$5,860,000**

Source: Hansford Economic Consulting, Dean Runyan and Associates, and Golf 20/20

ltgc spend

[1] Average daily spending estimated by Dean Runyan and Associates for North Lake Tahoe, 2003 inflated to 2007 dollars.
[2] Length of stay based on survey data for North Lake Tahoe, as utilized by Dean Runyan and Associates for the North Lake Tahoe Resort Association in 2003.
[3] The Golf Economy Report, 2002 conducted by SRI International estimates 32% of golf trips are planned with the sole intent of playing golf.
[4] Visitors whose primary purpose of visiting South Shore is to play golf at LTGC.
[5] Spending per visitor and length of stay reflects a mixture of overnight and day-trip visitors.
[6] On average, golf travelers spent $851 per person per trip in 1998, according to a NGF survey (reported by Golf 20/20). Inflated to 2007 $s in table.
[7] Number of events-only visitors to LTGC estimated by taking 50% of the total number of events guests (precise number of events visitors that are locals is unknown).
[8] Given that the accuracy of either method is unknown, the mid-point is used. This estimate includes spending by visitors for events during winter.

Table D-21
Lake Tahoe Golf Course Economic Feasibility Analysis
Estimated LTGC Visitor Spending by Category

Scenario 2 - High Rounds

LTGC Visitor Spending	Estimated Share of Spending					Total Visitor Spending
	LTGC [1]	Lodging	Other Recreation	Retail	Food & Beverage	
El Dorado County Visitor Spending 2005		$156,900,000	$125,600,000	$179,200,000	$167,700,000	**$629,300,000**
El Dorado County Visitor Spending Inflated to 2007 $s		**$168,860,614**	**$135,174,590**	**$192,860,561**	**$180,483,907**	**$677,272,049**
Percent of El Dorado County Visitor Spending		*25%*	*20%*	*28%*	*27%*	*100%*
Tahoe Portion at 70% of El Dorado County Visitor Spending [2]		**$118,202,430**	**$94,622,213**	**$135,002,393**	**$126,338,735**	**$474,090,434**
Adjustments to Tahoe Portion [3]		21%	36%	22%	21%	100%
Adjusted Tahoe Portion of El Dorado County Visitor Spending		**$99,558,991**	**$170,672,556**	**$104,299,896**	**$99,558,991**	**$474,090,434**
Estimated Spending by LTGC Visitors	**$1,052,103**	**$1,230,600**	**$1,057,497**	**$1,289,200**	**$1,230,600**	**$5,860,000**
Percent of LTGC Visitor Spending	*18%*	*21%*	*18%*	*22%*	*21%*	*100%*

Source: Hansford Economic Consulting, Dean Runyan and Associates, and RRC Associates

visitor spend

[1] Visitor spending at LTGC calculated as 67% of golf activities revenues, 95% of merchandise, 67% of food and beverage, and 67% of other revenues (percentages are HEC estimates).

[2] In 2006, RRC Associates estimated visitor spending in the Tahoe portion of El Dorado County to be approximately 70% of the County total visitor spending.

[3] Based on findings of the 'Economic Significance of Travel to the North Lake Tahoe Area' by Dean Runyan Associates, 2003.

Table D-22
Lake Tahoe Golf Course Economic Feasibility Analysis
Estimated Earnings and Employment in South Shore Generated by LTGC

Scenario 2 - High Rounds

Earnings and Employment	Direct Spending	Earnings	Employment (Jobs) [1]
Assumptions			
El Dorado County Visitor Spending, Earnings and Employment Estimates (2005)	$629,300,000	$232,100,000	10,410
Average Earnings per Job			$22,296
Jobs per $1 Million Dollars of Direct Spending			17
Estimates of Jobs and Earnings			
Payroll and Jobs at LTGC	$1,052,103	$531,200	65
Estimated South Shore Earnings and Jobs Generated by LTGC (2007 $s)	$4,807,897	$1,773,261	80
Total Estimates of Spending, Earnings, and Jobs Generated in South Shore by LTGC Visitors (2007 $s)	**$5,860,000**	**$2,304,461**	**145**

Source: Hansford Economic Consulting and Dean Runyan Associates

job gen

[1] Number of jobs includes full and part-time jobs.

Table D-23
Lake Tahoe Golf Course Economic Feasibility Analysis
Estimate of Annual Property and Sales Taxes Generated by LTGC

Scenario 2 - High Rounds

LTGC Generated Tax	Sales Revenue	Percent Taxable [1]	Tax Rate	Estimated Total Sales Tax
Estimated Sales Taxes				
Merchandise	$136,400	100%	7.75%	$11,000
Food and Beverage	$514,600	85%	7.75%	$34,000
Subtotal Sales (rounded)	**$651,000**			**$45,000**
Property Taxes (rounded)				$65,000
Total Estimated Annual Sales and Property Taxes (rounded)				**$110,000**

Source: Hansford Economic Consulting, American Golf Corporation, and CA Board of Equalization

taxes

[1] HEC estimate.

Table D-24
Lake Tahoe Golf Course Economic Feasibility Analysis
Estimated Additional Taxes Generated by LTGC Visitors

Scenario 2 - High Rounds

Estimated Taxes	Lodging	Other Recreation	Retail	Food & Beverage	**Non-LTGC Spending**
Non-LTGC Visitor Spending by LTGC Visitors (rounded)	$1,231,000	$1,057,000	$1,289,000	$1,231,000	**$4,808,000**
Tax Type	*Transient Occupancy Tax*	*various*	*Sales Tax*	*Sales Tax*	
Tax Factor [1]	10.00%		7.75%	7.75%	
Percentage of Total Taxed [2]	100%	n.a.	90%	85%	
Estimated Taxes by Category (rounded)	**$123,000**	**n.a.**	**$90,000**	**$81,000**	**$294,000**

Source: Hansford Economic Consulting, City of South Lake Tahoe, and RRC Associates

other taxes

[1] This estimate excludes a potential additional 2% Transient Occupancy Tax at certain redevelopment sites. It also excludes the South Lake Tahoe Tourism Improvement District Fee of $2.00 per night for hotels/motels and $3.00 per night for vacation rentals and timeshares.

[2] HEC estimate based on RRC Associates "Share of Taxable Sales Analysis" prepared for the City of South Lake Tahoe, 2006.

Table D-25
Lake Tahoe Golf Course Economic Feasibility Analysis
Estimated South Shore Total Direct Spending by LTGC Visitors

Scenario 3

LTGC Visitors	Rounds of Golf at LTGC	Percent of Rounds for Golf Trip [1]	Total Estimated LTGC Visitors	*Percent of Visitors*	Average Daily Spending (per person) [2]	Average Length of Stay (in Days) [3]	Estimated Total Direct Spending
	a	*b*	*c*		d	e	f = c*d*e
Golfers [4]							
Method A							
Golfers arriving by Air or Charter Bus	0	32%	0	*0%*	$229	5.60	$0
Golfers arriving by Auto [5]	0	32%	0	*0%*	$161	3.10	$0
Total Estimated LTGC Visitor Golfers	**0**		**0**	***0%***			**$0**
Method B							
Average Spending per Person per Golf Trip (assumes no repeat trips) [6]			**0**		$1,116		**$0**
Non-Golfers							
Estimated LTGC Non-golfer Visitors (Events Only) [5],[7]			**1,832**	*100%*	$161	3.10	$911,784
Total Estimated LTGC Visitors			**1,832**	***100%***			
Range of Direct Spending						$911,784 to	$911,784
Estimated Mid-point (rounded) [8]							**$912,000**

Source: Hansford Economic Consulting, Dean Runyan and Associates, and Golf 20/20

ltgc spend

[1] Average daily spending estimated by Dean Runyan and Associates for North Lake Tahoe, 2003 inflated to 2007 dollars.
[2] Length of stay based on survey data for North Lake Tahoe, as utilized by Dean Runyan and Associates for the North Lake Tahoe Resort Association in 2003.
[3] The Golf Economy Report, 2002 conducted by SRI International estimates 32% of golf trips are planned with the sole intent of playing golf.
[4] Visitors whose primary purpose of visiting South Shore is to play golf at LTGC.
[5] Spending per visitor and length of stay reflects a mixture of overnight and day-trip visitors.
[6] On average, golf travelers spent $851 per person per trip in 1998, according to a NGF survey (reported by Golf 20/20). Inflated to 2007 $s in table.
[7] Number of events-only visitors to LTGC estimated by taking 50% of the total number of events guests (precise number of events visitors that are locals is unknown).
[8] Given that the accuracy of either method is unknown, the mid-point is used. This estimate includes spending by visitors for events during winter.

Table D-26
Lake Tahoe Golf Course Economic Feasibility Analysis
Estimated LTGC Visitor Spending by Category

Scenario 3

LTGC Visitor Spending	Estimated Share of Spending					Total Visitor Spending
	LTGC [1]	Lodging	Other Recreation	Retail	Food & Beverage	
El Dorado County Visitor Spending 2005		$156,900,000	$125,600,000	$179,200,000	$167,700,000	**$629,300,000**
El Dorado County Visitor Spending Inflated to 2007 $s		**$168,860,614**	**$135,174,590**	**$192,860,561**	**$180,483,907**	**$677,272,049**
Percent of El Dorado County Visitor Spending		*25%*	*20%*	*28%*	*27%*	*100%*
Tahoe Portion at 70% of El Dorado County Visitor Spending [2]		**$118,202,430**	**$94,622,213**	**$135,002,393**	**$126,338,735**	**$474,090,434**
Adjustments to Tahoe Portion [3]		21%	36%	22%	21%	100%
Adjusted Tahoe Portion of El Dorado County Visitor Spending		**$99,558,991**	**$170,672,556**	**$104,299,896**	**$99,558,991**	**$474,090,434**
Estimated Spending by LTGC Visitors	**$171,520**	**$191,520**	**$156,800**	**$200,640**	**$191,520**	**$912,000**
Percent of LTGC Visitor Spending	*19%*	*21%*	*17%*	*22%*	*21%*	*100%*

Source: Hansford Economic Consulting, Dean Runyan and Associates, and RRC Associates

visitor spend

[1] Visitor spending at LTGC calculated as 67% of golf activities revenues, 95% of merchandise, 67% of food and beverage, and 67% of other revenues (percentages are HEC estimates).

[2] In 2006, RRC Associates estimated visitor spending in the Tahoe portion of El Dorado County to be approximately 70% of the County total visitor spending.

[3] Based on findings of the 'Economic Significance of Travel to the North Lake Tahoe Area' by Dean Runyan Associates, 2003.

Table D-27
Lake Tahoe Golf Course Economic Feasibility Analysis
Estimated Earnings and Employment in South Shore Generated by LTGC

Scenario 3

Earnings and Employment	Direct Spending	Earnings	Employment (Jobs) [1]
Assumptions			
El Dorado County Visitor Spending, Earnings and Employment Estimates (2005)	$629,300,000	$232,100,000	10,410
Average Earnings per Job			$22,296
Jobs per $1 Million Dollars of Direct Spending			17
Estimates of Jobs and Earnings			
Payroll and Jobs at LTGC	$171,520	$219,900	32
Estimated South Shore Earnings and Jobs Generated by LTGC (2007 $s)	$740,480	$273,106	12
Total Estimates of Spending, Earnings, and Jobs Generated in South Shore by LTGC Visitors (2007 $s)	**$912,000**	**$493,006**	**44**

Source: Hansford Economic Consulting and Dean Runyan Associates

job gen

[1] Number of jobs includes full and part-time jobs.

Table D-28
Lake Tahoe Golf Course Economic Feasibility Analysis
Estimate of Annual Property and Sales Taxes Generated by LTGC

Scenario 3

LTGC Generated Tax	Sales Revenue	Percent Taxable [1]	Tax Rate	Estimated Total Sales Tax
Estimated Sales Taxes				
Merchandise	$0	100%	7.75%	$0
Food and Beverage	$256,000	85%	7.75%	$17,000
Subtotal Sales (rounded)	**$256,000**			**$17,000**
Property Taxes (rounded)				$65,000
Total Estimated Annual Sales and Property Taxes (rounded)				**$82,000**

Source: Hansford Economic Consulting, American Golf Corporation, and CA Board of Equalization

taxes

[1] HEC estimate.

Table D-29
Lake Tahoe Golf Course Economic Feasibility Analysis
Estimated Additional Taxes Generated by LTGC Visitors

Scenario 3

Estimated Taxes	Lodging	Other Recreation	Retail	Food & Beverage	**Non-LTGC Spending**
Non-LTGC Visitor Spending by LTGC Visitors (rounded)	$192,000	$157,000	$201,000	$192,000	**$742,000**
Tax Type	*Transient Occupancy Tax*	*various*	*Sales Tax*	*Sales Tax*	
Tax Factor [1]	10.00%		7.75%	7.75%	
Percentage of Total Taxed [2]	100%	n.a.	90%	85%	
Estimated Taxes by Category (rounded)	**$19,000**	**n.a.**	**$14,000**	**$13,000**	**$46,000**

Source: Hansford Economic Consulting, City of South Lake Tahoe, and RRC Associates

other taxes

[1] This estimate excludes a potential additional 2% Transient Occupancy Tax at certain redevelopment sites. It also excludes the South Lake Tahoe Tourism Improvement District Fee of $2.00 per night for hotels/motels and $3.00 per night for vacation rentals and timeshares.

[2] HEC estimate based on RRC Associates "Share of Taxable Sales Analysis" prepared for the City of South Lake Tahoe, 2006.

APPENDIX F

Water Quality Data Tables

Upper Truckee River		TMDL Results				Project Analysis						Cumulative Projects Analysis			
RGA Station Locations		by Tier:	Channel Restoration	MIXED Treatment	Bank Protection	Upper Truckee River Restoration and Golf Course Reconfiguration Project									
(km)	(ft)	Existing Load of fines (CUBIC YARSDS)	Maximum Treatment Bank Erosion of Fines (CUBIC YARDS)	Maximum Treatment Bank Erosion of Fines (CUBIC YARDS)	Maximum Treatment Bank Erosion of Fines (CUBIC YARDS)	Alternative 1		Alternatives 2, 3, 5		Alternative 4		With UTRGC Alt. 1 Complete treat all proposed	With UTRGC Alt. 1 Subtotals	With UTRGC Alts. 2, 3, 5 Subtotals	With UTRGC Alt. 4 Subtotals
		No Treatment	All reaches treated	All reaches treated	All reaches treated	Existing	Subtotals	Restored	Subtotals	Protected	Subtotals				
24.19	79,364														
23.01	75,492	3.8	1.8	3.8	0.6	4	641	4	641	4	641	4	641	641	641
22.54	73,950	2.2	1.0	2.2	0.3	2		2		2		2			
21.77	71,424	2.6	1.2	2.6	0.4	3		3		3		3			
21.40	70,210	0.7	0.3	0.7	0.1	1		1		1		1			
20.75	68,077	2.2	1.0	2.2	0.3	2		2		2		2			
19.94	65,420	145.3	67.1	57.0	22.8	145		145		145		145			
19.26	63,189	179.0	82.7	70.3	28.1	179		179		179		179			
18.57	60,925	181.6	83.9	71.3	28.5	182		182		182		182			
17.99	59,022	10.7	5.0	10.7	1.7	11		11		11		11			
17.78	58,333	30.8	14.2	4.8	4.8	31		31		31		31			
16.90	55,446	12.4	5.7	12.4	2.0	12		12		12		12			
16.40	53,806	6.3	2.9	6.3	1.0	6		6		6		6			
15.78	51,772	6.1	2.8	6.1	1.0	6		6		6		6			
15.277	50,121	57.0	26.3	9.0	9.0	57		57		57		57			
14.77	48,458	246.4	113.8	90.9	38.7	246	1,228	246	793	246	546	246	1,228	793	546
14.10	46,260	23.2	10.7	23.2	3.6	23		23		23		23			
13.52	44,357	413.3	190.9	64.9	64.9	413		191		65		413			
13.15	43,143	173.7	80.3	64.1	27.3	174		80		27		174			
12.07	39,600	24.8	11.4	24.8	3.9	25		11		4		25			
11.21	36,778	197.2	91.1	72.8	31.0	197		91		31		197			
10.84	35,564	149.2	68.9	70.6	23.4	149		149		149		149			
10.04	32,940	19.0	8.8	19.0	3.0	19	2,451	19	2,451	19	2,451	9	1,132	1,132	1,132
8.46	27,756	982.3	453.8	362.5	154.2	982		982		982		454			
7.14	23,425	718.4	331.9	265.1	112.8	718		718		718		332			
5.84	19,160	24.9	11.5	24.9	3.9	25		25		25		12			
5.06	16,601	149.4	69.0	58.6	23.5	149		149		149		69			
4.10	13,451	19.0	8.8	19.0	3.0	19		19		19		9			
2.94	9,646	333.4	154.0	52.3	52.3	333		333		333		154			
1.96	6,414	197.7	91.3	73.0	31.0	198		198		198		91			
1.63	5,344	3.9	1.8	3.9	0.6	4		4		4		2			
0.00	-	3.1	1.4	3.1	0.5	3		3		3		1			
SUMS															
24.19	**79,364**	**4,319.7**	**1,995.7**	**1,552.1**	**678.2**	**4,320**	**4,320**	**3,885**	**3,885**	**3,638**	**3,638**	**3,001**	**3,001**	**2,566**	**2,319**

UTRGC Project Reaches
Results from TMDL Phase II Stream Channel Erosion Study.

Streambank Fine Sediment Source Information (Simon and others 2003; Simon 2006)											Existing Loads: Stream Average Percent Fines			Existing Loads: Specific Percent Fines		Reduced Loads: Channel Restoration		
RGA River Station (km)	river station (ft)	Bank Erosion (Left)	Bank Erosion (Right)	Bank Instability Percent (Left)	Bank Instability Percent (Right)	Combined Bank Percent Failing (%)	Unit Length (km)	Distributed Average Percent Failing (%)	Length-Weighted Percent Failing (%)	Relative Contribution of Fines from Banks (H, M, L)	"High" Existing Bank Erosion of Fines (m3) *	"Moderate" Existing Bank Erosion of Fines (m3)	"Severity Rated" Existing Bank Erosion of Fines (m3)	Typical Bank Percent Fines (%)	"Reach Specific" Existing Bank Erosion of Fines (m3)	Maximum Treatment Bank Erosion of Fines (m3) All reaches treated	Focused Treatment Bank Erosion of Fines (m3) Only "High" reaches treated	Combined H&M Treatment Bank Erosion of Fines (m3) "High & Moderate" reaches treated
24.19	79,364	Fluvial	Fluvial	0-10%	0-10%	5.0%												
23.01	75,492	None	Fluvial	0-10%	11-25%	11.5%	1.18	8.3%	9.7%	L	185	68	6.8	6.1%	2.9	1.4	2.9	2.9
22.54	73,950	None	Mass Wasting	0-10%	11-25%	11.5%	0.47	11.5%	5.4%	L	103	38	3.8	6.3%	1.7	0.8	1.7	1.7
21.77	71,424	None	None	0-10%	0-10%	5.0%	0.77	8.3%	6.4%	L	121	44	4.4	6.3%	2.0	0.9	2.0	2.0
21.40	70,210	Fluvial	Fluvial	0-10%	0-10%	5.0%	0.37	5.0%	1.9%	L	35	13	1.3	6.3%	0.6	0.3	0.6	0.6
20.75	68,077	Mass Wasting	Mass Wasting	0-10%	11-25%	11.5%	0.65	8.3%	5.4%	L	102	38	3.8	6.5%	1.7	0.8	1.7	1.7
19.94	65,420	Mass Wasting	Fluvial	51-75%	0-10%	34.0%	0.81	22.8%	18.4%	M	351	129	129.0	12.3%	111.1	51.3	111.1	51.3
19.26	63,189	Fluvial	Mass Wasting	0-10%	26-50%	21.5%	0.68	27.8%	18.9%	M	359	132	132.1	14.8%	136.8	63.2	136.8	63.2
18.57	60,925	None	Mass Wasting	0-10%	51-75%	34.0%	0.69	27.8%	19.1%	M	365	134	134.0	14.8%	138.9	64.2	138.9	64.2
17.99	59,022	Fluvial	Fluvial	0-10%	0-10%	5.0%	0.58	19.5%	11.3%	L	215	79	7.9	14.8%	8.2	3.8	8.2	8.2
17.78	58,333	None	Mass Wasting	0-10%	25-50%	21.5%	0.21	13.3%	2.8%	M	53	19	19.5	17.3%	23.5	10.9	23.5	10.9
16.90	55,446	Fluvial	Fluvial	11-25%	0-10%	11.5%	0.88	16.5%	14.5%	L	277	102	10.2	13.4%	9.5	4.4	9.5	9.5
16.40	53,806	Fluvial	Fluvial	11-25%	11-25%	18.0%	0.50	14.8%	7.4%	L	140	52	5.2	13.4%	4.8	2.2	4.8	4.8
15.78	51,772	None	None	0-10%	0-10%	5.0%	0.62	11.5%	7.1%	L	136	50	5.0	13.4%	4.7	2.2	4.7	4.7
15.277	50,121	None	Fluvial	0-10%	26-50%	21.5%	0.50	13.3%	6.7%	M	127	47	46.7	13.4%	43.6	20.1	43.6	20.1
14.77	48,458	None	Mass Wasting	0-10%	76-100%	46.5%	0.51	34.0%	17.2%	H	328	121	328.4	9.4%	188.4	87.0	87.0	87.0
14.10	46,260	Fluvial	None	0-10%	0-10%	5.0%	0.67	25.8%	17.3%	L	329	121	12.1	21.0%	17.8	8.2	17.8	17.8
13.52	44,357	None	Mass Wasting	0-10%	76-100%	46.5%	0.58	25.8%	14.9%	H	285	105	284.5	18.2%	316.0	146.0	146.0	146.0
13.15	43,143	None	Mass Wasting	0-10%	50-75%	34.0%	0.37	40.3%	14.9%	M	284	104	104.2	18.2%	132.8	61.4	132.8	61.4
12.07	39,600	None	Mass Wasting	0-10%	0-10%	5.0%	1.08	19.5%	21.1%	L	401	147	14.7	18.4%	18.9	8.7	18.9	18.9
11.21	36,778	Fluvial	Mass Wasting	0-10%	51-75%	34.0%	0.86	19.5%	16.8%	M	319	117	117	18.4%	150.8	69.7	150.8	69.7
10.84	35,564	Mass Wasting	Fluvial	51-75%	0-10%	34.0%	0.37	34.0%	12.6%	M	240	88	88.1	18.5%	114.0	52.7	114.0	52.7
10.04	32,940	None	Fluvial	0-10%	11-25%	11.5%	0.80	22.8%	18.2%	L	347	127	12.7	16.3%	14.5	6.7	14.5	14.5
8.46	27,756	None	Mass Wasting	0-10%	76-100%	46.5%	1.58	29.0%	45.8%	H	873	321	872.9	14.1%	751.0	347.0	347.0	347.0
7.14	23,425	None	Mass Wasting	0-10%	0-10%	27.5%	1.32	37.0%	48.8%	M	930	342	341.9	23.0%	549.2	253.7	549.2	253.7
5.84	19,160	None	None	0-10%	0-10%	5.0%	1.30	16.3%	21.1%	L	402	148	14.8	18.4%	19.1	8.8	8.8	19.1
5.06	16,601	Fluvial	Mass Wasting	26-50%	26-50%	38.0%	0.78	21.5%	16.8%	M	319	117	117.4	13.9%	114.2	52.8	114.2	52.8
4.10	13,451	Fluvial	Fluvial	0-10%	0-10%	5.0%	0.96	21.5%	20.6%	L	393	144	14.4	14.4%	14.6	6.7	14.6	14.6
2.94	9,646	Mass Wasting	None	51-75%	0-10%	34.0%	1.16	19.5%	22.6%	M	431	158	158	23.0%	254.9	117.8	254.9	117.8
1.96	6,414					20.0%	0.99	27.0%	26.6%	M	507	186	186	11.6%	151.2	69.8	151.2	69.8
1.63	5,344					12.0%	0.33	16.0%	5.2%	L	99	37	3.7	11.6%	3.0	1.4	3.0	3.0
0.00	-					5.0%	1.63	8.5%	13.8%	L	264	97	9.7	3.5%	2.4	1.1	2.4	2.4
	-																	
24.19	79,364						**24.19**		**20.2%**	**Volume (m3)**	**9322**	**3425**	**3191**		**3303**	**1526**	**2617**	**1594**
										Weight (kN)**	161267	59258	55203		57136	26397.0	45274	27572
										Weight (MT)	**16449**	**6044**	**5631**		**5828**	**2692.5**	**4618**	**2812**
										Volume/Kilometer (m3/km)	385	142	132		137	63.1	108	66
										Metric Ton/Kilometer (MT/km)	680	250	233		241	111.3	191	116
										Treated Length (km)						24.2	2.7	11.4
										Percent Total Load Reduction (%)						53.8%	20.8%	51.7%
										Cost of Treatment ($)								
										Cost per Metric Ton Reduced Load (%/MT)								

* Uses 1905 m3/km [average eroded fines for 4.51 km, no veg (1470 m3/km) and 13.1 km (2340 m3/km)].
** Uses average bulk unit weight of bank sediment from Simon and others 2003 (17.3 kN/m3)

Average Percent Reduction for Treatment	**53.8**
Slope Reduction from BSTEM	0.462