Appendix D: Facility Options & Capital Costs

Option A: Outdoor Aquatic Center

Option B: Indoor/Outdoor Aquatic Center

Option C: Indoor Competition & Training Center

Option D: Regional Aquatic Center

Option E: National Aquatic Center

Appendix D: Facility Options and Capital Costs

The five program options are described on the following pages. Each includes a general overview of the facility, a comparison to another aquatic facility in the Northwest, and an estimated minimal required site size. This is followed by a conceptual plan that shows uses and organization, a detailed description of the aquatic components, and a cost estimate.

The estimates list the spaces and their sizes, the overall facility size, a construction budget, and soft costs. The sum of the construction and soft costs provides a planning level project cost.

The notes at the bottom of each estimate are important. Of particular note is that the characteristics of each site may affect the estimated costs. For example:

- Site acquisition costs
- Unusual soils conditions
- Unusual development requirements – buffering, right-of-way improvements, transportation impact mitigation, etc.
- Extraordinary storm water management costs
- Remote utility locations
- Replacing existing recreational facilities. (For example, project costs for replacing each removed field is estimated to be $1,300,000 including synthetic turf, lighting and soft costs, but excluding site acquisition and other development costs. Refer to the site studies for impacts on existing fields.)

Option A: Outdoor Season Aquatics Center

Aquatic Goal: The focus of Option A would be the recreational user. While this option will allow for the seasonal competitive user, it will have minimal impact on the overall competitive aquatic use realm.

Facility Components: This option will include an outdoor 13,500 sq.ft. leisure pool with a zero depth entry, interactive play features, lazy river and slides. There will be extensive deck areas, shade structures and grass areas. A separate outdoor 25-yard by 25-meter competitive pool, with 1 and 3-meter diving boards, will also be included. The outdoor pool area will be supported by a bath house that has a concessions area, locker rooms, a meeting party room, and other support spaces. Capital costs below exclude the cost of land.

Building Size Comparison: Option A is approximately 50% larger in size than the Henry Moses Pool in Renton.

Site Size Requirement: Option A requires a site of approximately 5-1/2 acres.

Capital Cost Estimate: $19.1 million

Construction Costs:	$13,000,000
Soft Costs:	$6,000,000
Total Estimated Costs (2008 dollars):	$19,000,000

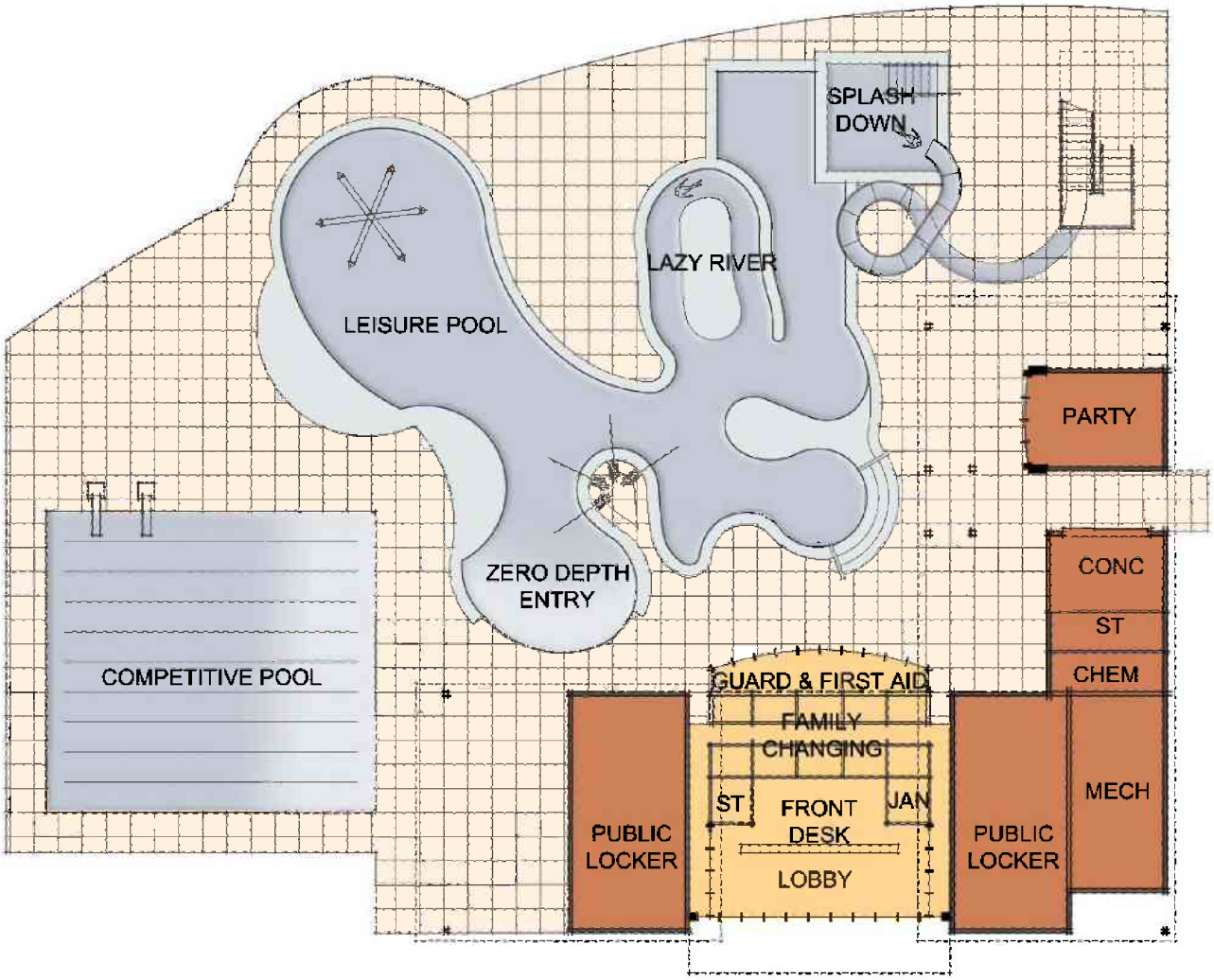
Projected annual Operational Surplus: $100,000

Revenues:	$831,850
Expenditures:	$702,279
Operating Surplus/Deficit:	+$129,571

Approximate Site Required: 5-1/2 acres

Projected Annual Visits: 77,250

Option A: Outdoor Season Aquatics Center



Option A: Outdoor Season Aquatics Center

Description of Design

All Pools:

The structural pool floor will be poured-in-place concrete. The pool walls will be concrete. The interior pool finish will be a combination of ceramic tile and special aggregate interior. The competitive pool, warm up and leisure pools will have a deck level gutter system. The lazy river will have a weir for water skimming. The whirlpools shall utilize surface skimmer systems.

Outdoor Competitive Pool:

The competitive pool is a 25-meter by 25-yard tank with 1 and 3-meter diving boards. This pool has a minimum depth of 4 feet and a maximum depth of 14 feet. The gutter system for this pool is deck level with parapet headwalls at the starting and turning ends of the pool. The competitive pool has been designed to accommodate a variety of users and activities.

The 14 foot depth is the desired FINA depth for 3 meter spring boards.

There are 10-lanes for the 25-meter course. There are 10-lanes for 25-yard cross course swimming which may be used for training. The majority of the pool has a depth of greater than 7 feet. This depth is ideal for both men's and women's water polo courses, and is used in synchronized swimming routines.

An inflatable obstacle course has been proposed for use in the competitive pool during leisure times. This system anchors to existing lane lines. This provides a leisure component into the competitive pool. The obstacle course requires a water depth of 10 feet or more and needs constant supervision when in use.

This pool will be configured for a variety of swimming events. For each event, various competitive equipment shall be required. There will be 10 starting platforms that will be interchangeable between the headwalls. For cross course swimming, there will be 18-single post, long-reach starting platforms. Wave quelling lane lines will be required for the various course layouts, as well as for cross course swimming. The lane lines shall be 25-meters and 25-yards in length. One set of water polo equipment will be required for use in the men's and women's courses.

Outdoor Leisure Zero Depth Entry and Lazy River:

The new pool will be a concrete shell, approximately 13,500 sq. feet with curvilinear shape. The entry zone pool will vary in depth from 0 to a maximum depth of 5 feet. This zone of the pool will have many interactive play features, such as a climbable participatory structure, spray play devices, and/or a children's slide. The pool will feature a zero depth entry. The interior will be a white special aggregate interior. The pool configuration will include a deck level gutter and a trench grate and floor inlets spaced no less than 20 foot intervals. The circulation system will include regenerative media

filtration, automated water analyzer system, and sanitizer system. The design includes two fitness lap lanes with a water depth of 3'6" to 5'0".

The lazy river is approximately 170 feet in length and 8 feet wide. Attached to the river are a plunge pool, and a catch pool with a water walk. The river also contains an action channel, which provides spraying water, dumping water, and rapids. A passive path is also available to circumvent the action channel. On the north side of the river is a vortex. This is an area in which people are propelled in a circular path.

The construction for this body of water will be different than the other pools. A freeboard is the height of the wall from water level to the top of the deck. The height of the freeboard will be 6 inches around a majority of the pool.

There are multiple means of access to the river. The primary access to the river is with stairs. The secondary and tertiary means of access are through the water slide.

The water slide is located in the corner of the site. The slide tower has two slides to choose from. One slide is an enclosed inner tube slide and is a means of access into the lazy river through the slide's plunge area. The plunge area is also equipped with stairs so that riders may exit the pool and quickly get back to the stairs of the slide tower. The second slide is an open body slide that ends in a rundown lane on the deck.

Key Design Assumptions

Pool Structural:

Soil bearing pressure greater than or equal to 2500 lbs/sq ft
Equivalent fluid pressure lateral load for pool walls less than or equal to 50 lbs/cubic ft
Water Table below bottom pool slab
Owner will provide a geotechnical report to confirm assumptions

Pool Mechanical

High performance systems, efficient systems are desired.
230/460 V, 3 phase power will be available and brought to the pool mechanical room.
Potable water will be supplied to the pool mechanical room.
Potable water analysis will be provided to determine pool chemicals.
Pool chemical and fresh water fill systems are to be automated.

Pool Finish

A special aggregate pool finish is proposed for all the pools. All racing lanes, targets, trim tiles and markings will be tile.

General:

All basic pool mechanical, deck, safety and play equipment will be provided as part of the Contract Documents.

Performance Goals

The pool design will appeal to users of all age groups and abilities in the water. The pool will be designed structurally in accordance with all geotechnical recommendations. The gutter design, main drain system, and the pool auto-fill system will maintain the required water level for correct skimming at all times. The mechanical and filtration system will provide pristine water quality while conserving water and energy use over traditional systems.

Option A: Outdoor Season Aquatics Center

Building	number	size	total	unit cost	subtotal
Front Desk and Lobby	1	650	650		
Locker Rooms	2	1,400	2,800		
Family Changing Rooms	10	100	1,000		
Meeting / Party Room	1	500	500		
Concessions	1	600	600		
Concessions Storage	1	300	300		
Guard Room	1	120	120		
First Aid Room	120	120	200		
Storage	1	200	1,000		
Mechanical Room	1	1,000	200		
Chemical Storage	1	200	200		
Janitor	1	100	100		
Subtotal			7,590		
Net to Gross	25%		1,898		
Building Total			9,488	$225	**$2,134,688**
Site			size / no.	unit cost	subtotal
Outdoor Leisure / Wellness Pool			13,500	$360	$4,860,000
Outdoor Competition Pool			6150	$285	$1,752,750
Outdoor Deck			40,000	$20	$800,000
Pool Landscaping			40,000	$8	$320,000
Surface Parking			250	$4,500	$1,125,000
Site Total					**$8,857,750**
Building / Site Total					*$10,992,438*
Design/Estimating Contingency	20%				$2,198,488
Estimated Construction Costs					**$13,190,925**
Estimated Soft Costs				Remarks	
A/E Fees	13.77%			$1,816,390	
WSST	9.00%			$1,187,183	
Permits	3.00%			$395,728	
Construction Contingency	7.00%			$923,365	
Soils / Geotech Survey	ls			$15,000	
Testing / Inspection	1.00%			$131,909	
Telecom	2.00%			$263,819	
Hazmat Survey	assume NA				
FF&E	5.00%			$659,546	
Legal	1.00%			$131,909	
Survey	ls			$50,000	
Owners Project Management	2.00%			$263,819	
Document Reproduction	0.50%			$65,955	
Estimated Soft Costs					**$5,904,622**
Estimated Project Costs					**$19,095,547**

NOTES

1. Sizes are preliminary and will be verified in future design studies.
2. The parking spaces indicated are for typical levels of use and may need to be supplemented with offsite parking or shuttling for competitive swim meets.
3. Estimated costs are based on Spring 2008 construction costs for the Bellevue/Seattle metropolitan area. Estimates will need to be refined/updated during each phase of design to reflect anticipated construction costs. Given the fluctuation of the construction market, one can anticipate a ±20% accuracy range on the estimate provided, depending on when the construction of any center would be initiated.
4. Each site may have additional site costs based on unusual site attributes, development requirements, and potential relocation of facilities/programs. These costs are not included.
5. "Net to Gross" reflects the ratio of programmed building area to overall building footprint. It includes walls, circulation, communications and electrical rooms, fire suppression rooms, storage, etc. A 25% net to gross ratio is a typical percentage for this type of facility at the feasibility phase.

6. A 20% Design Contingency is typical at the feasibility phase of a project. This percentage will be reduced at subsequent phases and will reach 0% at the end of contract documents.
7. A/E Fees are based on the Washington State Office of Financial Management, Prescribed Fee Percentage, plus 5% for additional services consultants based on the AIA Guidelines.

Option B: Indoor/Outdoor Year Round Aquatics Center

This option will include an indoor 4,000 sq.ft. leisure pool and outdoor leisure pool of 2,500 sq.ft., each with a zero depth entry, interactive play features, and slides. An adult whirlpool will be located inside and a 1,000 sq.ft. splash pad will be located outside. Separated by a glass wall, an indoor 25-yard by 25-meter competitive pool with 1 and 3-meter diving boards will be included. The aquatic center will also include a concessions area, locker rooms, a meeting/ management room, party rooms, and other support spaces.

Specific changes from Option A:

- Indoor leisure pool with whirlpool
- Indoor 25 yard by 25 meter competitive pool
- Outdoor splash pad

Aquatic Goal: Option B will still have a great impact on the needs of the recreational user. At the same time, Option B will also begin to meet some of the needs of the competitive field, especially up to the "high school" level.

Building Size Comparison: Option B is approximately 10%-15% larger in size than the Federal Way Community Center and also includes an outdoor pool.

Site Size Requirement: Option B requires a site of approximately five acres.

Capital Cost: $28.5 million

Construction Costs:	$19,800,000
Soft Costs:	$ 8 ,700,000
Total Estimated Costs (2008 dollars):	$28,500,000

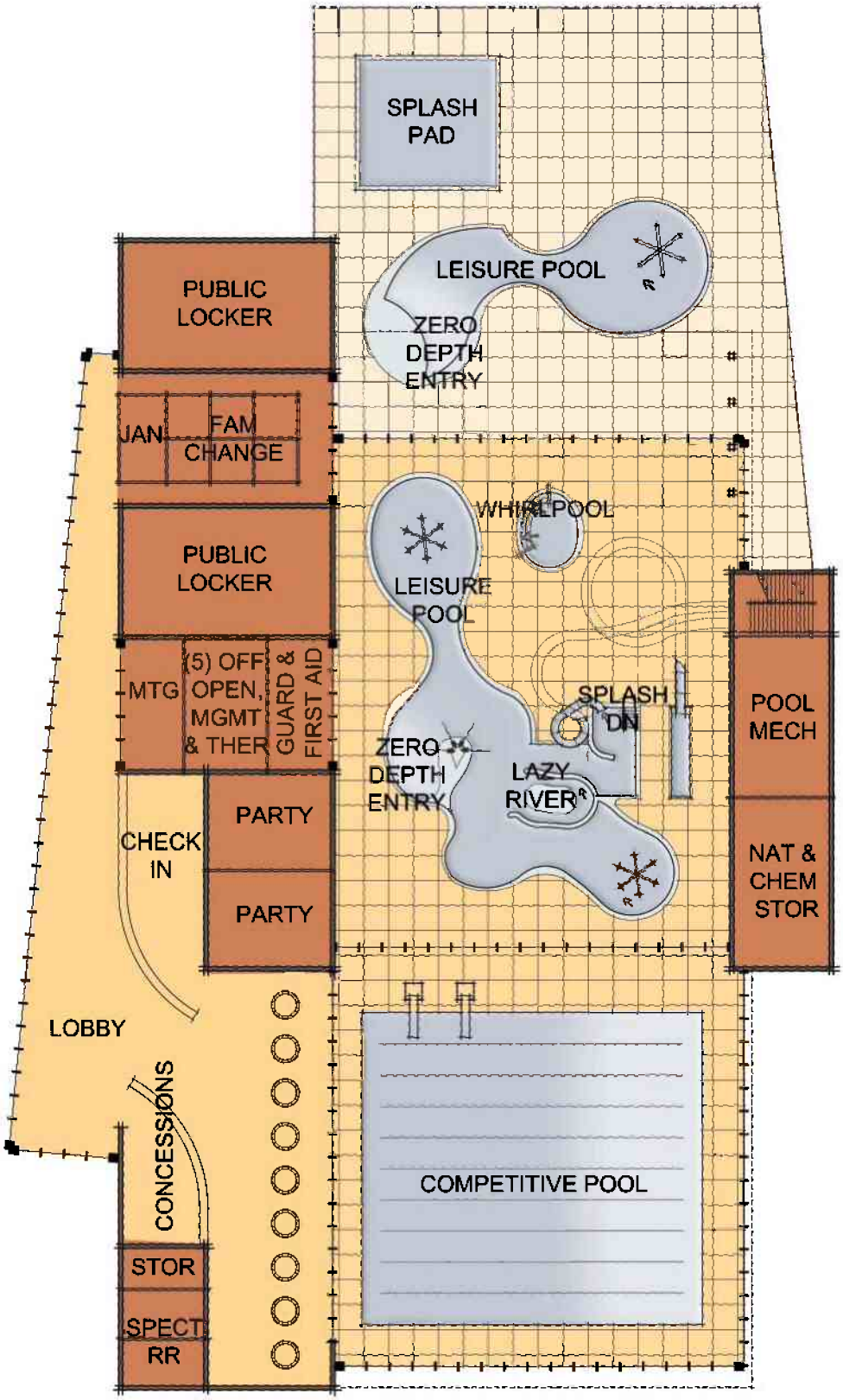
Annual Operating Surplus/Deficit: -$670,000

Revenues:	$1,515,657
Expenditures:	$2,180,774
Operating Surplus/Deficit:	-$667,117

Site Requirement: 5 acres

Annual visits: 155,200

Option B: Indoor/Outdoor Year Round Aquatics Center



Option B: Indoor/Outdoor Year Round Aquatics Center

Description of Design

All Pools:
The structural pool floor will be poured-in-place concrete. The pool walls will be concrete. The interior pool finish will be a combination of ceramic tile and special aggregate interior. The competitive pool, warm-up and leisure pools will have a deck level gutter system. The lazy river shall have a weir for water skimming. The whirlpools will utilize surface skimmer systems.

Indoor Competitive Pool:
The competitive pool is a 25-meter by 25-yard tank with 1 and 3-meter diving boards. This pool has a minimum depth of 4 feet and a maximum depth of 14 feet. The gutter system for this pool is deck level with parapet headwalls at the starting and turning ends of the pool. The competitive pool has been designed to accommodate a variety of users and activities.

The 14 foot depth is the desired FINA depth for 3 meter spring boards. There are 10-lanes for the 25-meter course.

There are 10-lanes for 25-yard cross course swimming which may be used for training. The majority of the pool has a depth of greater than 7 feet. This depth is ideal for both men's and women's water polo courses, and is used in synchronized swimming routines.

An inflatable obstacle course has been proposed for use in the competitive pool during leisure times. This system anchors to existing lane lines. This provides a leisure component into the competitive pool. The obstacle course requires a water depth of 10 feet or more and needs constant supervision when in use.

This pool shall be configured for a variety of swimming events. For each event, various competitive equipment shall be required. There will be 10-starting platforms that will be interchangeable between the headwalls. For cross course swimming, there will be 18-single post, long-reach starting platforms. Wave quelling lane lines will be required for the various course layouts, as well as for cross course swimming. The lane lines shall be 25-meters and 25-yards in length. One set of water polo equipment shall be required for use in the men's and women's courses.

Indoor Leisure Zero Depth Entry, Lazy River and Outdoor Splash Pad:
The new leisure pools will be concrete shells, approximately 4000 sq. feet inside and 2500 sq. feet outside with a curvilinear shape. The entry zone will vary in depth from 0 to a maximum depth of 5 feet. This zone of the pools will have many interactive play features such as, a climbable participatory structure, spray play devices, and/or a children's slide. The pools will feature a zero depth entry. The interiors will be a white special aggregate interior. The pool configurations will include a deck level gutter, a trench grate, and floor inlets spaced no less than 20 foot intervals. The circulation system

will include regenerative media filtration, automated water analyzer system, and sanitizer system. The design includes two fitness lap lanes with a water depth of 3'6" to 5'0".

The lazy river is approximately 140 feet in length and 8 feet wide. Attached to the river are a plunge pool and a catch pool with a water walk. The river also contains an action channel, which provides spraying water, dumping water, and rapids. A passive path is also available to circumvent the action channel. On the one side of the river is a vortex. This is an area in which people are propelled in a circular path.

The construction for this body of water will be different than the other pools. A freeboard is the height of the wall from water level to the top of the deck. The height of the freeboard will be 6 inches around a majority of the pool.

There are multiple means of access to the river. The primary access to the river is with stairs. The secondary and tertiary means of access are through the water slide.

The water slide is located in the corner of the natatorium. The slide tower has two slides from which riders may choose. One slide is an enclosed inner tube slide and is a means of access into the lazy river through the slide's plunge area. The plunge area is also equipped with stairs so that riders may exit the pool and quickly get back to the stairs of the slide tower. The second slide is an open body slide that ends in a rundown lane on the deck.

There will be an inviting and dynamic outdoor splash pad with interactive sprays. The pad will be located so there is a visual connection to the indoor pools. This will be a gathering place for individuals enjoying the warm seasonal temperatures of summer.

Indoor Whirlpool:
The whirlpool will be a concrete shell, and approximately 300 square feet and of a freeform shape. This pool shall be 3'6" deep. Hydro therapy Jets will be placed approximately 3 feet on center in the bench and in the bubble bed. This whirlpool shall have a transfer wall for accessibility.

Key Design Assumptions

Pool Structural:
Soil bearing pressure greater than or equal to 2500 lbs/sq ft
Equivalent fluid pressure lateral load for pool walls less than for equal to 50lbs/cubic ft
Water table below bottom pool slab
Owner will provide a geotechnical report to confirm assumptions

Pool Mechanical:
High performance systems, efficient systems are desired.
230/460 V, 3 phase power will be available and brought to the pool mechanical room.
Potable water will be supplied to the pool mechanical room.
Potable water analysis will be provided to determine pool chemicals.
Pool chemical and fresh water fill systems are to be automated.

Pool Finish:
A special aggregate pool finish is proposed for all the pools. All racing lanes, targets, trim tiles and markings shall be tile.

General:
All basic pool mechanical, deck, safety and play equipment will be provided as part of the Contract Documents.

Performance Goals:
The pool design will appeal to users of all age groups and abilities with the water. The pool will be designed structurally in accordance with all geotechnical recommendations. The gutter design, main drain system, and the pool auto fill system will maintain the required water level for correct skimming at all times. The mechanical and filtration system will provide pristine water quality while conserving water and energy use over traditional systems.

Option B: Indoor/Outdoor Year Round Aquatics Center

Building	number	size	total	unit cost	subtotal
Natatorium	1	20,000	20,000		
Meet Management	1	200	200		
Natatorium Storage	1	1,000	1,000		
Mechanical Room	1	1,200	1,200		
Chemical Storage	1	200	200		
Lobby	1	1,000	1,000		
Concessions	1	600	600		
Concessions Storage	1	600	600		
Offices	3	100	300		
Meeting Room	1	600	600		
Locker Room	2	1,500	3,000		
Family Changing Room	6	100	600		
Guard Office	1	350	350		
First Aid Room	1	150	150		
Party Room	2	500	1,000		
Spectator Restroom	1	600	600		
Janitor	1	200	200		
Storage	1	500	500		
Subtotal			32,100		
Net to Gross	25%		8,025		
Building Subtotal			40,125	$250	$10,031,250
Leisure Pool			4,000	$380	$1,520,000
Competition Pool			6,150	$285	$1,752,750
Whirlpool			1	lump sum	$231,500
Building Total					**$13,535,500**
Site			size /no.	unit cost	subtotal
Outdoor Leisure Pool			2,500	$360	$900,000
Outdoor Spray Pad			1	lump sum	$300,000
Outdoor Deck			7,000	$20	$140,000
Pool Landscaping			7,000	$8	$56,000
Surface Parking			350	$4,500	$1,575,000
Site Total					$2,971,000
Building / Site Total					***$16,506,500***
Design/Estimating Contingency	20%				$3,301,300
Estimated Construction Costs					**$19,807,800**
Estimated Soft Costs				Remarks	
A/E Fees	13.23%			$2,260,572	
WSST	9.00%			$1,782,702	
Permits	3.00%			$594,234	
Construction Contingency	7.00%			$1,386,546	
Soils / Geotech Survey	ls			$15,000	
Testing / Inspection	1.00%			$198,078	
Telecom	2.00%			$369,156	
Hazmat Survey	assume NA				
FF&E	5.00%			$990,390	
Legal	1.00%			$198,078	
Survey	ls			$50,000	
Owners Project Management	2.00%			$396,156	
Document Reproduction	0.50%			$99,039	
Estimated Soft Costs					**$8,726,951**
Estimated Project Costs					**$28,534,751**

NOTES

1. Sizes are preliminary and will be verified in future design studies.
2. The parking spaces indicated are for typical levels of use and may need to be supplemented with offsite parking or shuttling for competitive swim meets.

3. Estimated costs are based on Spring 2008 construction costs for the Bellevue/Seattle metropolitan area. Costs need to be updated to the mid-point of construction, once known.
4. Each site may have additional site costs based on unusual site attributes, development requirements, and potential relocation of facilities/programs. These costs are not included.
5. "Net to Gross" reflects the ratio of programmed building area to overall building footprint. It includes walls, circulation, communications and electrical rooms, fire suppression rooms, storage, etc. A 25% net to gross ratio is a typical percentage for this type of facility at the feasibility phase.
6. A 20% Design Contingency is typical at the feasibility phase of a project. This percentage will be reduced at subsequent phases and will reach 0% at the end of contract documents.
7. A/E Fees are based on the Washington State Office of Financial Management, Prescribed Fee Percentage, plus 5% for additional services consultants based on the AIA Guidelines.

Option C: Indoor Competition & Training Aquatics Center

This option will include an indoor 5,500 sq.ft leisure pool with a zero depth entry, interactive play features, lazy river, slides and an adult whirlpool. An indoor 6-lane by 25-yard program pool is also part of this space. Separated by a glass wall, an indoor stretch 10-lane competitive pool with 1 and 3-meter diving boards and seating for 500 will be included. There will also be a dedicated 1,200 sq.ft. wellness pool in the center. An outdoor splash pad will be located next to the leisure pool. The aquatic center will also include a concessions area, locker rooms, meeting room, meet management room, party rooms as well as other support spaces.

Specific Changes from Option B:

- Indoor 6-lane by 25-yard program pool
- Competitive pool becomes a stretch 10-lane pool
- Seating for 500
- Meeting room
- Indoor wellness pool

Aquatic Goal: Option C will still have a great impact on the needs of the recreational user. However, Option C will also have a major impact on the training and aquatic meet venue of the competitive field, especially up to the "high school" and swim club level.

Building Size Comparison: Option C is approximately 40% - 50% larger in size than the Federal Way Community Center given the larger competitive pool as well as a separate program and wellness pools. Option C is approximately 15% - 20% smaller than the Medicine Hat Family Leisure Centre (in Medicine Hat, Alberta), which has a 4,300 square foot leisure pool, a 50-meter 8-lane pool with two moveable bulkheads, a 20-meter 4-lane pool, and diving equipment.

Site Size Requirement: Option C requires a site of approximately six acres.

Capital Cost: $45 million

Construction Costs:	$32,000,000
Soft Costs:	$13,000,000
Total Estimated Costs (2008 dollars):	$45,000,000

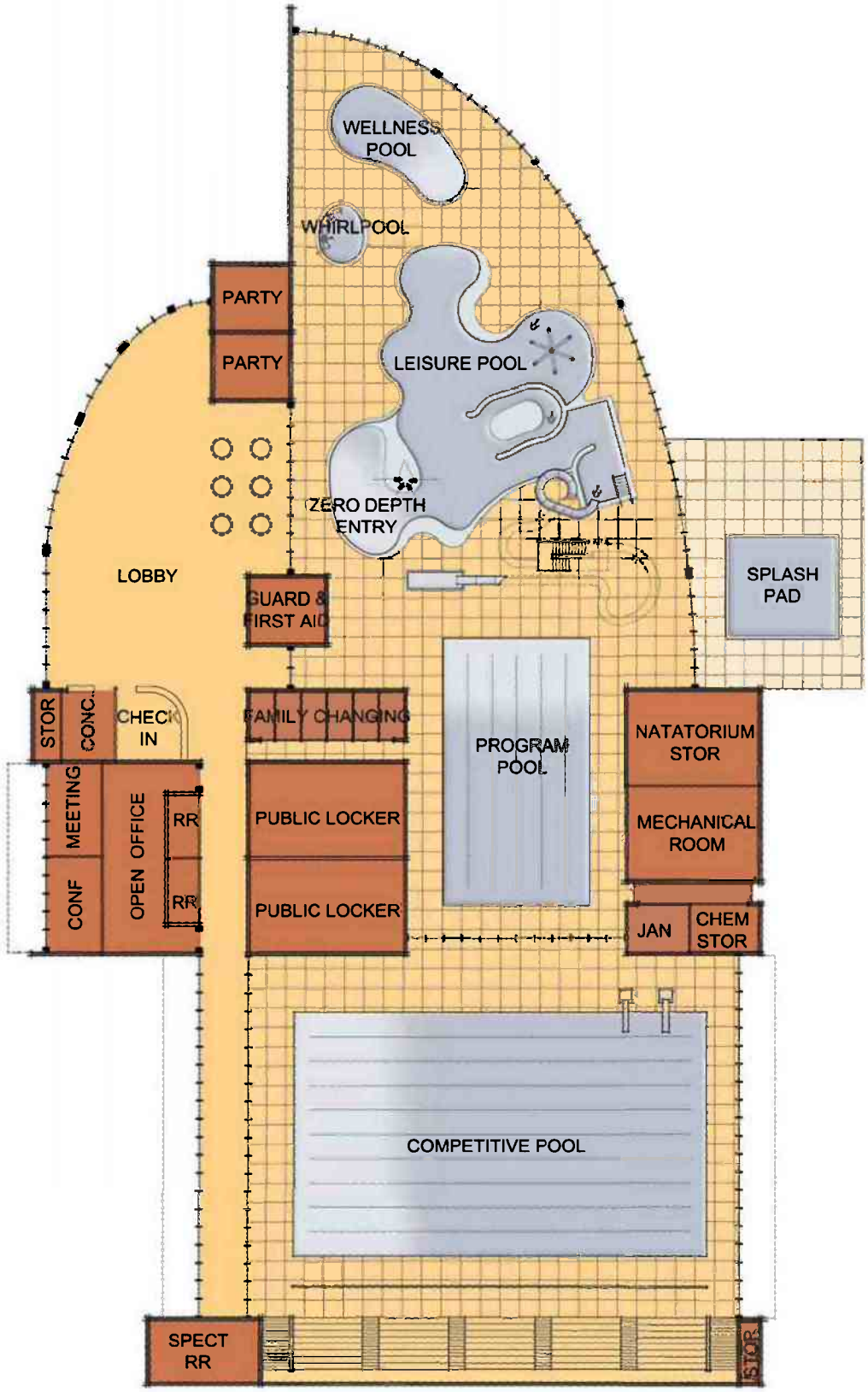
Annual Operating Surplus/Deficit: -$1.22 million

Revenues:	$2,294,761
Expenditures:	$3,514,071
Operating Surplus/Deficit:	-$1,219,310

Site Requirement: 6 acres

Annual visits: 205,000

Option C: Indoor Competition & Training Aquatics Center



Option C: Indoor Competition & Training Aquatics Center

Description of Design

All Pools:
The structural pool floor will be poured–in-place concrete. The pool walls will be concrete. The interior pool finish will be a combination of ceramic tile and special aggregate interior. The competitive pool, warm-up and leisure pools shall be a deck level gutter system. The lazy river shall have a weir for water skimming. The whirlpools will utilize surface skimmer systems.

Indoor Competitive Pool:
The competitive pool is a 25-meter by 25-yard tank with 1 and 3-meter diving boards. This pool has a minimum depth of 4 feet and a maximum depth of 14 feet. The gutter system for this pool is deck level with parapet headwalls at the starting and turning ends of the pool. The competitive pool has been designed to accommodate a variety of users and activities.

The 14 foot depth is the desired FINA depth for 3-meter spring boards.

There are 10-lanes for the stretch 25-course in either yards or meters contingent on bulkhead placement with a diving well. There are 16-lanes for 25-yard cross course swimming which may be used for training. The majority of the pool has a depth of greater than 7 feet. This depth is ideal for both men's and women's water polo courses, and is used in synchronized swimming routines.

An inflatable obstacle course has been proposed for use in the competitive pool during leisure times. This system anchors to existing lane lines. This provides a leisure component into the competitive pool. The obstacle course requires a water depth of 10 feet or more and needs constant supervision when in use.

This pool shall be configured for a variety of swimming events. For each event, various competitive equipment will be required. There will be 10-starting platforms that will be interchangeable between the bulkheads. For cross course swimming, there will be 16-single post, long-reach starting platforms. Wave quelling lane lines will be required for the various course layouts, as well as, for cross course swimming. The lane lines shall be 25-meters and 25-yards in length. One set of water polo equipment will be required for use in the men's and women's courses.

Indoor Program Pool:
The program pool is 25 yards, 6 lane pool. It has a minimum depth of 4 feet and a maximum depth of 7 feet. This pool slopes cross course to provide a larger area for shallow water. This shallow water is good for introductory swimmers and for water aerobics and walking.

This pool has two primary and two secondary means of egress - one of the two primary means is an accessible ramp into the pool, and the second is a set of stairs for easy access into the pool. The two secondary means of access are in-wall steps and grabrails.

Similar to the competitive pool, the program pool shall be either structural concrete with ceramic tile finish or a Myrtha system with concrete floors. In-between the concrete floor and the PVC membrane is a cushion. This cushion provides comfort for swimmers doing aerobics, water walking, or teaching swim lessons.

Indoor Leisure Zero Depth Entry, Lazy River and Outdoor Spray Pad:
The new pool will be a concrete shell, approximately 5500 sq. feet with a curvilinear shape. The entry zone pool will vary in depth from 0 to a maximum depth of 5 feet. This zone of the pool will have many interactive play features, such as a climbable participatory structure, spray play devices, and/or a children's slide. The pool will feature a zero depth entry. The interior will be a white special aggregate interior. The pool configuration will include a deck level gutter and a trench grate and floor inlets spaced no less than 20 foot intervals. The circulation system will include regenerative media filtration, automated water analyzer system, and sanitizer system. The design includes two fitness lap lanes with a water depth of 3'6" to 5'0".

The lazy river is approximately 140 feet in length and 8 feet wide. Attached to the river are a plunge pool and a catch pool with a water walk. The river also contains an action channel, which provides spraying water, dumping water, and rapids. A passive path is also available to circumvent the action channel. On the one side of the river is a vortex. This is an area in which people are propelled in a circular path.

The construction for this body of water will be different than the other pools. A freeboard is the height of the wall from water level to the top of the deck. The height of the freeboard will be 6 inches around a majority of the pool.

There are multiple means of access to the river. The primary access to the river is with stairs. The secondary and tertiary means of access are through the water slide.

The water slide is located in the corner of the natatorium. The slide tower has two slides which riders may choose from. One slide is an enclosed inner tube slide and is a means of access into the lazy river through the slide's plunge area. The plunge area is also equipped with stairs so that riders may exit the pool and quickly get back to the stairs of the slide tower. The second slide is an open body slide that ends in a rundown lane on the deck.

There will be an inviting and dynamic outdoor splash pad with interactive sprays. The pad will be located so there is a visual connection to the indoor pools. This will be a gathering place for individuals enjoying the warm seasonal temperatures of summer.

Indoor Adult Whirlpool:
The adult whirlpool will be a concrete shell and, approximately 300 square feet and of a freeform shape. This pool will be 3'6" deep. Hydro therapy jets will be placed

approximately 3 feet on center in the bench and in the bubble bed. This whirlpool will have a transfer wall for accessibility.

Indoor Wellness Pool:
The wellness pool will be a concrete shell, approximately 1,200 sq. feet in a curvilinear shape. This pool will vary in depth from 3'6" adjacent to the steps and extend to a maximum depth of 4'8". The pool will feature a recessed step entry and an accessible ramp. The interior finish of the pool will be ceramic tile for durability and ease of maintenance. The pool configuration will include deck level gutters and wall inlets spaced no less than 20 foot intervals.

Key Design Assumptions

Pool Structural:
Soil bearing pressure greater than or equal to 2500 lbs/sq ft
Equivalent fluid pressure lateral load for pool walls less than for equal to 50lbs/cubic ft
Water table below bottom pool slab
Owner will provide a geotechnical report to confirm assumptions

Pool Mechanical:
High performance systems, efficient systems are desired.
230/460 V, 3 phase power will be available and brought to the pool mechanical room.
Potable water will be supplied to the pool mechanical room.
Potable water analysis will be provided to determine pool chemicals.
Pool chemical and fresh water fill systems are to be automated.

Pool Finish:
A special aggregate pool finish is proposed for all the pools. All racing lanes, targets, trim tiles and markings shall be tile.

General:
All basic pool mechanical, deck, safety and play equipment will be provided as part of the Contract Documents.

Performance Goals:
The pool design will appeal to users of all age groups and abilities with the water. The pool will be designed structurally in accordance with all geotechnical recommendations. The gutter design, main drain system, and the pool auto fill system will maintain the required water level for correct skimming at all times. The mechanical and filtration system will provide pristine water quality while conserving water and energy use over traditional systems.

Option C: Indoor Competition & Training Aquatics Center

Building	number	size	total	unit cost	subtotal
Natatorium	1	43,000	43,000		
Meet Management	1	200	200		
Natatorium Storage	1	1,000	1,000		
Mechanical Room	1	1,500	1,200		
Chemical Storage	1	200	200		
Lobby	1	1,200	1,000		
Concessions	1	800	600		
Concessions Storage	1	300	600		
Offices	3	100	300		
Conference Room	1	600	600		
Locker Room	2	1,700	3,000		
Family Changing Room	6	100	600		
Guard Office	1	350	350		
First Aid Room	1	150	150		
Party Room	2	500	1,000		
Meeting Room	1	600	600		
Spectator Restroom	1	600	600		
Janitor	1	200	200		
Storage	1	500	500		
Subtotal			56,500		
Net to Gross	25%		14,125		
Building Subtotal			70,625	$250	$17,656,250
Leisure Pool			5,500	$365	$2,007,500
Program Pool			3,690	$285	$1,051,650
Wellness Pool			1,200	$285	342,000
Competition Pool			9,525	$300	$2,857,500
Whirlpool			1	lump sum	$231,500
Building Total					**$24,146,400**
Site			size /no.	unit cost	subtotal
Outdoor Spray Pad			500	ls	$200,000
Outdoor Deck			2,000	$20	$40,000
Pool Landscaping			2,000	$8	$16,000
Surface Parking			400	$4,500	$1,800,000
Site Total					$2,056,000
Building / Site Total					*$26,202,400*
Design/Estimating Contingency	20%				$5,240,480
Estimated Construction Costs					**$31,442,880**
Estimated Soft Costs				Remarks	
A/E Fees	12.63%			$3,971,236	
WSST	9.00%			$2,829,859	
Permits	3.00%			$943,286	
Construction Contingency	7.00%			$2,201,002	
Soils / Geotech Survey	ls			$15,000	
Testing / Inspection	1.00%			$314,429	
Telecom	2.00%			$628,858	
Hazmat Survey	assume NA				
FF&E	5.00%			$1,572,144	
Legal	1.00%			$314,429	
Survey	ls			$50,000	
Owners Project Management	2.00%			$628,858	
Document Reproduction	0.50%			$157,214	
Estimated Soft Costs					**$13,626,314**
Estimated Project Costs					**$45,069,194**

NOTES

1. Sizes are preliminary and will be verified in future design studies.

2. The parking spaces indicated are for typical levels of use and may need to be supplemented with offsite parking, structured parking, or shuttling for competitive swim meets.
3. Estimated costs are based on Spring 2008 construction costs for the Bellevue/Seattle metropolitan area. Estimates will need to be refined/updated during each phase of design to reflect anticipated construction costs. Given the fluctuation of the construction market, one can anticipate a ±20% accuracy range on the estimate provided, depending on when the construction of any center would be initiated.
4. Each site may have additional site costs based on unusual site attributes, development requirements, and potential relocation of facilities/programs. These costs are not included.
5. "Net to Gross" reflects the ratio of programmed building area to overall building footprint. It includes walls, circulation, communications and electrical rooms, fire suppression rooms, storage, etc. A 25% net to gross ratio is a typical percentage for this type of facility at the feasibility phase.
6. A 20% Design Contingency is typical at the feasibility phase of a project. This percentage will be reduced at subsequent phases and will reach 0% at the end of contract documents.
7. A/E Fees are based on the Washington State Office of Financial Management, Prescribed Fee Percentage, plus 5% for additional services consultants based on the AIA Guidelines.

Option D: Indoor Regional Aquatics Center

This option will include a 6,000 sq.ft. indoor leisure pool with a zero depth entry, interactive play features, lazy river, slides, water walk, and an adult whirlpool. An indoor 8-lane by 25-yard program pool is also part of this space. Separated by a glass wall, an indoor 54-meter by 25-yard competitive pool with two bulkheads, 1 and 3-meter diving boards, and seating for 1,200 will be included. There will also be a dedicated 1,200 sq.ft. wellness pool in the center. The aquatic center will also include a concessions area, locker rooms, a meet management room, several meeting rooms, party rooms, coach's offices, team locker rooms, as well as other support spaces.

Specific Changes from Option C:

- Larger leisure pool with a water walk
- Program pool goes to 8-lane by 25-yard
- Competitive pool becomes a 54-meter by 25 yard pool with two bulkheads
- Seating increase to 1,200
- More meeting rooms
- Coaches offices
- Team locker rooms
- Larger concessions area

Aquatic Goal: Option D will still have an impact on the needs of the recreational user. However, Option D will also have a major impact into the training and aquatic meet venue of the competitive field, all the way to the collegiate level. This option will allow for the premier aquatic users to have a venue for intensive training and meets.

Building Size Comparison: Option D is 10%-15% larger in size than the pools in the King County Aquatic Center. It has larger leisure pool, a separate program pool, and wellness pool, but it does not have the dive tower.

Site Size Requirement: Option D requires approximately 7-1/2 acres with surface parking. Otherwise, this option would require a site of approximately 4 acres, with a 3-level, structured parking garage.

Capital Cost: $53.3 million with surface parking
$71.8 million with parking structure

Construction Costs:	$38,000,000	$56,500,000
Soft Costs:	$15,300,000	$15,300,000
Total Estimated Costs (2008 dollars):	$53,300,000	$71,800,000

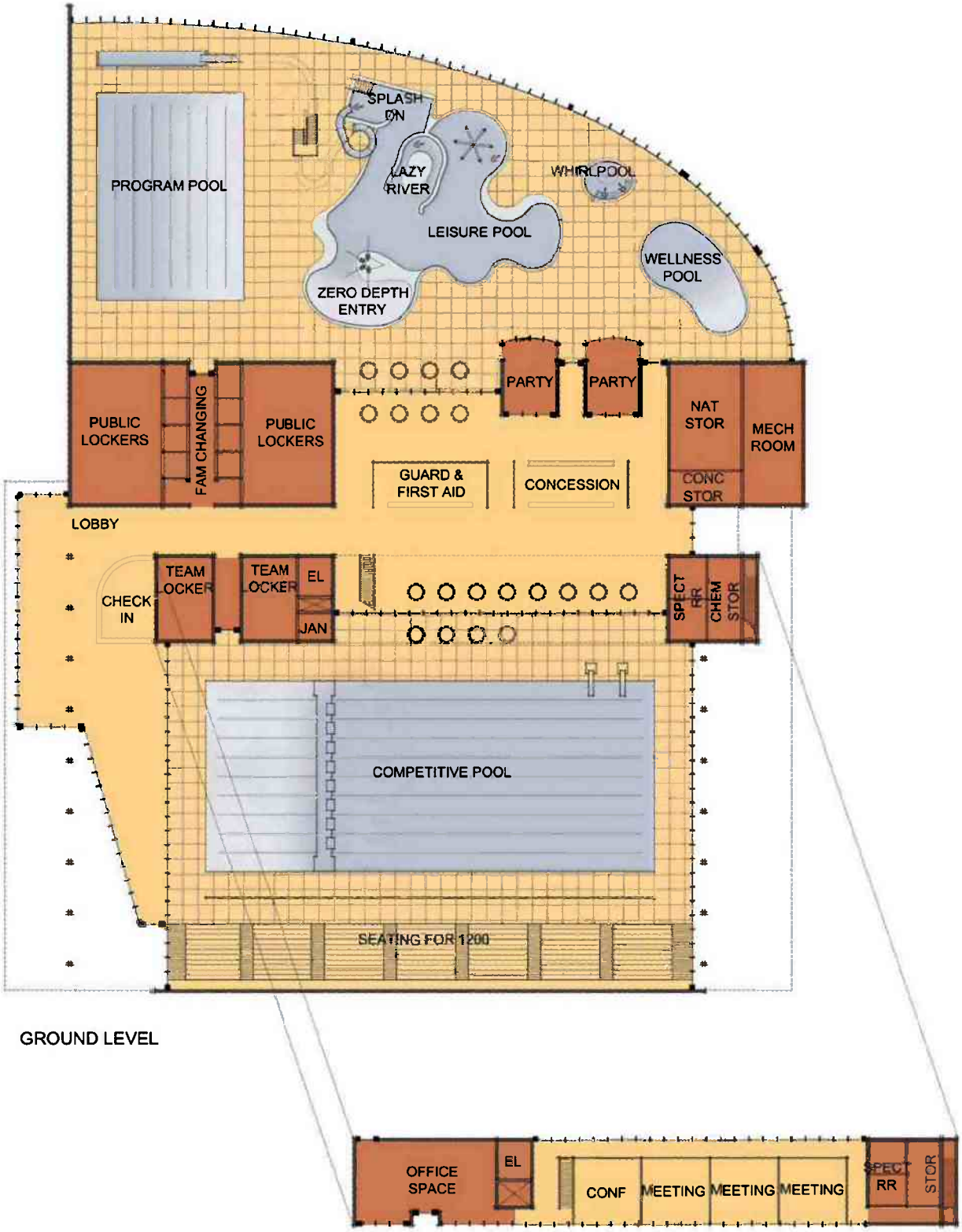
Annual Operating Surplus/Deficit: -$1.35 million

Revenues:	$2,617,073
Expenditures:	$3,971,309
Operating Surplus/Deficit:	-$1,354,236

Site Requirement: 7.5 acres with surface parking
4 acres with parking structure

Annual visits: 226,000

Option D: Indoor Regional Aquatics Center



Option D: Indoor Regional Aquatics Center

Description of Design

All Pools:
The structural pool floor will be poured-in-place concrete. The pool walls will be concrete. The interior pool finish will be a combination of ceramic tile and special aggregate interior. The competitive pool, warm up, and leisure pools will have a deck level gutter system. The lazy river will have a weir for water skimming. The whirlpools will utilize surface skimmer systems.

Indoor Competitive Pool:
The competitive pool is a 25-meter by 25-yard tank with 1 and 3-meter diving boards. This pool has a minimum depth of 4 feet and a maximum depth of 14 feet. The gutter system for this pool is deck level with parapet headwalls at the starting and turning ends of the pool. The competitive pool has been designed to accommodate a variety of users and activities.

The 14 foot depth is the desired FINA depth for 3-meter spring boards.

There are 10 lanes for the 50 meter course. There are 18-lanes for 25-yard cross course swimming which may be used for training. The majority of the pool has a depth of greater than 7 feet. This depth is ideal for both men's and women's water polo courses, and is used in synchronized swimming routines.

The bulkhead system is designed to integrate with the pool. Most manufactured bulkheads will work on this type of pool. The Myrtha bulkhead has a track system that supports the bulkhead so as not to rest on the gutter. There is a removable turn wheel on the bulkhead that allows it to be moved with minimal effort by one person on each side.

An inflatable obstacle course has been proposed for use in the competitive pool during leisure times. This system anchors to existing lane lines. This provides a leisure component into the competitive pool. The obstacle course requires a water depth of 10 feet or more and needs constant supervision when in use.

This pool will be configured for a variety of swimming events. For each event various competitive equipment will be required. There will be 20 starting platforms that will be interchangeable between the headwall and the two bulkheads. For cross course swimming, there will be 18-single post, long-reach starting platforms. These cross course platforms will be easily removable so as not to interfere with the bulkheads. Wave quelling lane lines will be required for the various course layouts, as well as, for cross course swimming. The lane lines shall be 50-meters and 25-yards in length. One set of water polo equipment shall be required for use in the men's and women's courses.

Indoor Program Pool:
The program pool is a 25-yard by 8-lane pool. It has a minimum depth of 4 feet and a maximum depth of 7 feet. This pool slopes cross course to provide a larger area for shallow water. This shallow water is good for introductory swimmers, water aerobics, and walking. This pool has two primary and two secondary means of egress. One of the two primary means is an accessible ramp into the pool. The second is a set of stairs for easy access into the pool. The two secondary means of access are in-wall steps and grab-rails.

Similar to the competitive pool, the program pool will be either structural concrete with ceramic tile finish or a Myrtha system with concrete floors. In-between the concrete floor and the PVC membrane is a cushion. This cushion provides comfort for swimmers doing aerobics, water walking, and teaching swim lessons.

Indoor Leisure Zero Depth Entry and Lazy River:
The new pool will be a concrete shell, approximately 6000 sq. feet with a curvilinear shape. The entry zone pool will vary in depth from 0 to a maximum depth of 5 feet. This zone of the pool will have many interactive play features such as a climbable participatory structure, spray play devices and a children's slide. The pool will feature a zero depth entry. The interior will be a white special aggregate interior. The pool configuration will include deck level gutter and a trench grate and floor inlets spaced no less than 20 foot intervals. The circulation system will include regenerative media filtration, automated water analyzer system, and sanitizer system. The design includes two fitness lap lanes with a water depth of 3'6" to 5'0".

The lazy river is approximately 180 feet in length and 8 feet wide. Attached to the river is a plunge pool and a catch pool with a water walk. The river also contains an action channel, which provides spraying water, dumping water, and rapids. A passive path is also available to circumvent the action channel. On the one side of the river is a vortex. This is an area in which people are propelled in a circular path. A wave generator in the river is designed to provide ride variety.

The construction for this body of water will be different than the other pools. A freeboard is the height of the wall from water level to the top of the deck. The height of the freeboard will be 2 feet around a majority of the pool. The freeboard increases in the area of the wave generator. The wave generator will be capable of creating waves of up to 18 inches.

There are multiple means of access to the river. The primary access to the river is with a ramp. This allows riders to wade into the water to a point where they are able to sit in a tube and begin to float. The secondary and tertiary means of access are through the water slide and the water walk catch pool.

The water slide is located in the corner of the natatorium. The slide tower has two slides from which riders may choose. One slide is an enclosed inner tube slide and is a means of access into the lazy river through the slide's plunge area. The plunge area is also equipped

with stairs so that riders may exit the pool and quickly get back to the stairs of the slide tower. The second slide is an open body slide that ends in a rundown lane on the deck.

The water walk catch pool is located in the island of the lazy river and is accessible by a bridge over the river. The water walk is a series of floatables tethered to the floor with netting overhead. This provides a challenging event for swimmers. There are three means of egress to the catch pool for the water walk: Two are grab rails and in-wall steps located in the center of the north wall and in the south west corner of the catch pool; the third is an opening between the catch pool and the lazy river. It is consulting team's recommendation that the opening between the river and the catch pool be used as a means of exit only.

The freeboard of the water walk catch pool will be 8 inches. Since water will seek its own level, this means that the deck for the island will be 10 inches lower than the elevation of the deck. The bridge will be designed to accommodate this change in elevation.

Indoor Adult Whirlpool:
The adult whirlpool will be a concrete shell and, approximately 300 square feet and of a freeform shape. This pool will be 3'6" deep. Hydro-therapy jets will be placed approximately 3 feet on center in the bench and in the bubble bed. This whirlpool will have a transfer wall for accessibility.

Indoor Wellness Pool:
The wellness pool will be a concrete shell, approximately 1200 sq. feet in a curvilinear shape. This pool will vary in depth from 3'6" adjacent to the steps and extend to a maximum depth of 4'8". The pool will feature a recessed step entry and an accessible ramp. The interior finish of the pool will be ceramic tile for durability and ease of maintenance. The pool configuration will include deck level gutters and wall inlets spaced no less than 20 foot intervals.

Key Design Assumptions

Pool Structural:
Soil bearing pressure greater than or equal to 2500 lbs/sq ft
Equivalent fluid pressure lateral load for pool walls less than for equal to 50lbs/cubic ft
Water table below bottom pool slab
Owner will provide a geotechnical report to confirm assumptions

Pool Mechanical:
High performance systems, efficient systems are desired.
230/460 V, 3 phase power will be available and brought to the pool mechanical room.
Potable water will be supplied to the pool mechanical room.
Potable water analysis will be provided to determine pool chemicals.
Pool chemical and fresh water fill systems are to be automated.

Pool Finish:
A special aggregate pool finish is proposed for all the pools. All racing lanes, targets, trim tiles and markings will be tile.

General:
All basic pool mechanical, deck, safety and play equipment will be provided as part of the Contract Documents.

Performance Goals:
The pool design will appeal to users of all age groups and abilities with the water. The pool will be designed structurally in accordance with all geotechnical recommendations. The gutter design, main drain system, and the pool auto fill system will maintain the required water level for correct skimming at all times. The mechanical and filtration system will provide pristine water quality while conserving water and energy use over traditional systems.

Option D: Indoor Regional Aquatics Center

Building	number	size	total	unit cost	subtotal
Natatorium	1	51,000	51,000		
Meet Management	1	300	300		
Natatorium Storage	1	1,500	1,500		
Mechanical Room	1	1,400	1,400		
Chemical Storage	1	200	200		
Lobby	1	1,800	1,800		
Concessions	1	800	600		
Concessions Storage	1	300	600		
Offices	5	100	500		
Conference Room	1	600	600		
Locker Room	2	2,000	4,000		
Family Changing Room	8	100	800		
Team Locker Room	2	750	1,500		
Guard Office	1	500	500		
First Aid Room	1	300	300		
Party Room	2	500	1,000		
Therapy Pool Office	1	250	250		
Meeting Room	3	600	1,800		
Spectator Restroom	1	700	700		
Coach's Office	2	120	240		
Janitor	1	300	300		
Storage	1	600	600		
Subtotal			70,390		
Net to Gross	25%		17,598		
Building Subtotal			87,968	$250	$21,996,875
Leisure Pool			6,000	$350	$2,100,000
Program Pool			4,500	$285	$1,282,500
Wellness Pool			1,200	$285	$342,000
Competition Pool			13,050	$255	$3,327,750
Whirlpool			1	lump sum	$231,500
Building Total					**$29,280,625**
Site			size /no.	unit cost	subtotal
Outdoor Deck			3,000	$20	$60,000
Surface Parking			500	$4,500	$2,250,000
Site Total					$2,310,000
Building / Site Total					*$31,590,625*
Design/Estimating Contingency	20%				$6,318,125
Estimated Construction Costs					**$37,908,750**
Estimated Soft Costs				Remarks	
A/E Fees	11.88%			$4,495,005	
WSST	9.00%			$3,405,307	
Permits	3.00%			$1,135,102	
Construction Contingency	7.00%			$1,895,438	
Soils / Geotech Survey	ls			$15,000	
Testing / Inspection	1.00%			$378,367	
Telecom	2.00%			$756,735	
Hazmat Survey	assume NA				
FF&E	5.00%			$1,891,837	
Legal	1.00%			$378,367	
Survey	ls			$50,000	
Owners Project Management	2.00%			$756,735	
Document Reproduction	0.50%			$189,183	
Estimated Soft Costs					**$15,347,076**
Estimated Project Costs					**$53,281,303**

NOTES

1. Sizes are preliminary and will be verified in future design studies.
2. The parking spaces indicated are for typical levels of use and may need to be supplemented with offsite parking, structured parking, or shuttling for competitive swim meets. It is estimated that 700 parking spaces will be required for competitive venues; the balance will be provided off-site. Providing structured parking in lieu of surface parking would add approximately $13 million to construction costs and $5.5 million to soft
costs.
3. Estimated costs are based on Spring 2008 construction costs for the Bellevue/Seattle metropolitan area. Estimates will need to be refined/updated during each phase of design to reflect anticipated construction costs. Given the fluctuation of the construction market, one can anticipate a ±20% accuracy range on the estimate provided, depending on when the construction of any center would be initiated.
4. Each site may have additional site costs based on unusual site attributes, development requirements, and potential relocation of facilities/programs. These costs are not included.
5. "Net to Gross" reflects the ratio of programmed building area to overall building footprint. It includes walls, circulation, communications and electrical rooms, fire suppression rooms, storage, etc. A 25% net to gross ratio is a typical percentage for this type of facility at the feasibility phase.
6. A 20% Design Contingency is typical at the feasibility phase of a project. This percentage will be reduced at subsequent phases and will reach 0% at the end of contract documents.
7. A/E Fees are based on the Washington State Office of Financial Management, Prescribed Fee Percentage, plus 5% for additional services consultants based on the AIA Guidelines.

Option E: Indoor National Aquatics Center

This option will include a 6,000 sq.ft. indoor leisure pool with a zero depth entry, interactive play features, lazy river, slides, water walk, and an adult, as well as, a family whirlpool. An indoor 25-yard by 25-meter program pool is also part of this space. Separated by a glass wall, an indoor 54-meter by 25-yard competitive pool with two bulkheads, and a separate diving pool with 1 and 3-meter boards plus a platform diving tower will be included. There will be seating for 3,000. A dedicated wellness pool will be located in the center. The aquatic center will also include a concessions area, locker rooms, a meeting management room, dry land training areas, several meeting rooms, party rooms, coaches offices, team locker rooms, as well as, other support spaces.

Specific Changes from Option D:

- A family whirlpool is added to the leisure pool
- Program pool goes to 25-yard by 25-meters
- Seating increases to 3,000
- Diving pool with a tower
- Dry land training space
- Larger concessions area

Aquatic Goal: Option E should be able to meet all the needs of the recreational user. However, Option E will also have a major impact into the training and aquatic meet venue of the competitive field, all the way to the elite/Olympic performance level. This option will allow for the elite aquatic users to have a venue for intensive training and large meets.

Building Size Comparison: Option E is approximately 30%-40% larger in size than the King County Aquatic Center and close to the same size (slightly larger by 10% or so) than the pools at the community center in Saanich, BC.

Site Size Requirement: Option E requires a site of approximately 10 1/2 acres with surface parking or approximately 6 acres with a structured parking lot.

Capital Cost: $83.7 million with surface parking
$114.2 million with parking structure

Construction Costs:	$58,900,000	$89,400,000
Soft Costs:	$24,800,000	$24,800,000
Total Estimated Costs (2008 dollars):	$83,700,000	$114,200,000

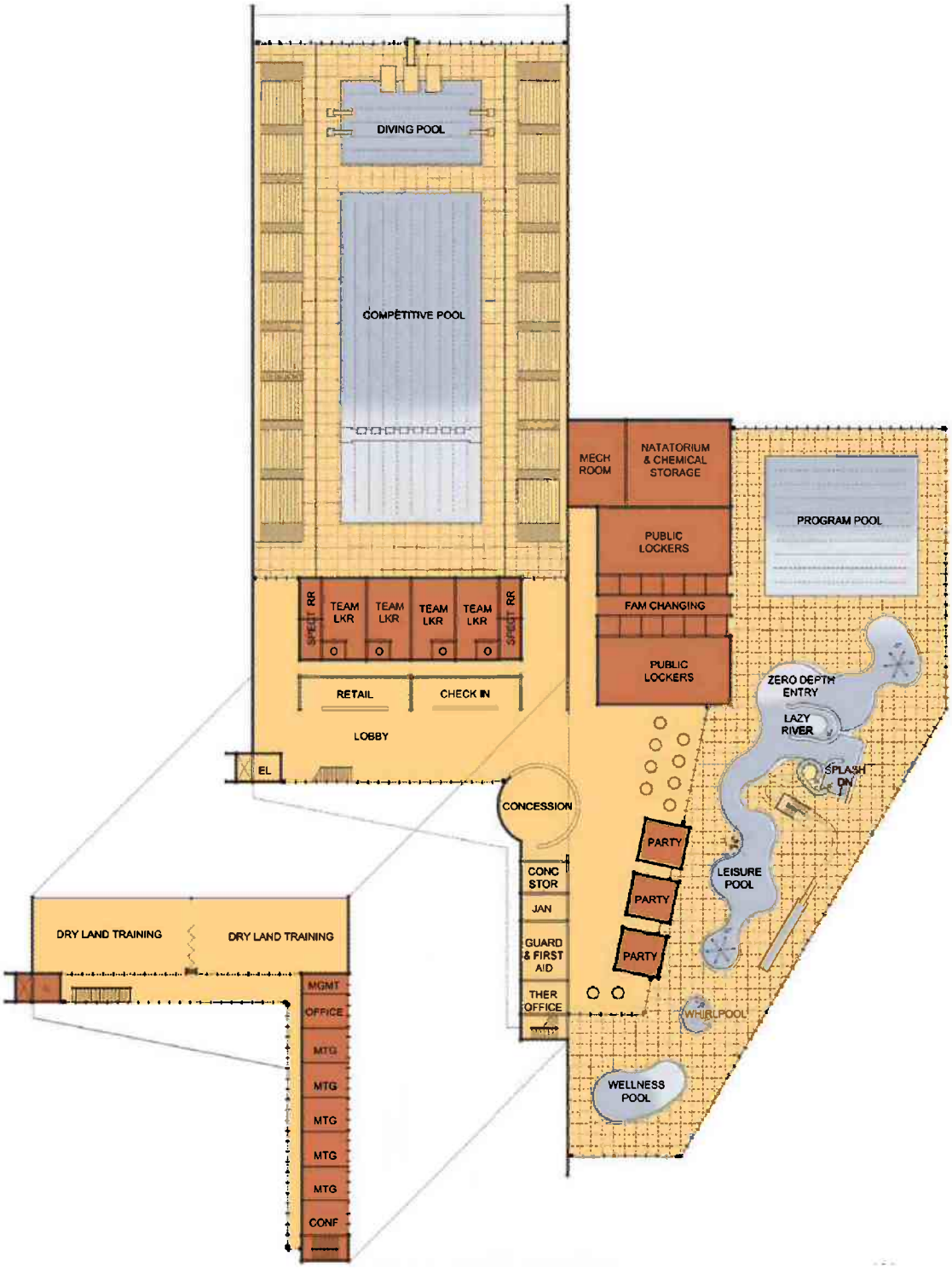
Annual Operating Surplus/Deficit: -$1.90 million

Revenues:	$2,917,738
Expenditures:	$4,820,348
Operating Surplus/Deficit:	-$1,902,610

Site Requirement: 10.5 acres with surface parking
6 acres with structured parking

Annual visits: 247,000

Option E: Indoor National Aquatics Center



Option E: Indoor National Aquatics Center

Description of Design

All Pools:
The structural pool floor will be poured-in-place concrete. The pool walls will be concrete. The interior pool finish will be a combination of ceramic tile and special aggregate interior. The competitive pool, warm up and leisure pools will have a deck level gutter system. The lazy river shall have a weir for water skimming. The whirlpools shall utilize surface skimmer systems.

Indoor Competitive Pool:
The competitive pool is a 54-meter by 25-yard tank with(2) 2-meter bulkheads. This pool has a minimum depth of 7 feet and a maximum depth of 14 feet. The gutter system for this pool is deck level with a specialized bulkhead and a removable headwall at the shallow end of the pool. The competitive pool has been designed to accommodate a variety of users and activities.

There are 10-lanes for the 50-meter course. There are 18-lanes for 25-yard cross course swimming which may be used for training. The majority of the pool has a depth of greater than 7 feet. This depth is ideal for both men's and women's water polo courses, and is used in synchronized swimming routines.

The bulkhead system is designed to integrate with the main pool. Most manufactured bulkheads will work on this type of pool. The Myrtha bulkhead has a track system that supports the bulkhead, so as not to rest on the gutter. There is a removable turn wheel on the bulkhead that allows it to be moved with minimal effort by one person on each side.

An inflatable obstacle course has been proposed for use in the competitive pool during leisure times. This system anchors to existing lane lines. This provides a leisure component into the competitive pool. The obstacle course requires a water depth of 10 feet or more and needs constant supervision when in use.

This pool shall be configured for a variety of swimming events. For each event various competitive equipment shall be required. There will be 20-starting platforms that will be interchangeable between the headwall and the two bulkheads. For cross course swimming, there will be 18-single post, long-reach starting platforms. These cross course platforms will be easily removable, so as not to interfere with the bulkheads. Wave quelling lane lines will be required for the various course layouts, as well as, for cross course swimming. The lane lines will be 50-meters and 25-yards in length. One set of water polo equipment will be required for use in the men's and women's courses.

Indoor Diving Pool:
The indoor diving pool will provide the area required to conduct international diving competitions. This pool will be 25-yard in width and allow for 6-lanes of deep water. This pool will provide (2) 1-meter spring boards, (2) 3-meter spring boards, 10, 7.5, 5 and

3-meter tower positions with the appropriate dual platforms for synchronized diving. The 5-meter depth is the desired FINA depth for a 10-meter dive tower. A sparger system shall be installed for the 10, 7.5, 5 and 3-meter tower positions. The 3-meter and 1-meter spring boards will not have sparger lines.

Indoor Program Pool:
The program pool is a 25-yard by 25-meter 10-lane pool. It has a minimum depth of 4 feet and a maximum depth of 7 feet. This pool slopes cross course to provide a larger area for shallow water. This shallow water is good for introductory swimmers, water aerobics, and walking.

This pool has two primary and two secondary means of egress. One of the two primary means is an accessible ramp into the pool. The second is a set of stairs for easy access into the pool. The two secondary means of access are in-wall steps and grabrails.

Similar to the competitive pool, the program pool will be either structural concrete with ceramic tile finish or a Myrtha system with concrete floors. In-between the concrete floor and the PVC membrane is a cushion. This cushion provides comfort for swimmers doing aerobics, water walking, and teaching swim lessons.

Indoor Leisure Zero Depth Entry and Lazy River:
The new pool will be a concrete shell, approximately 6000 sq. feet with a curvilinear shape. The entry zone pool will vary in depth from 0 to a maximum depth of 5 feet. This zone of the pool will have many interactive play features such as, a climbable participatory structure, spray play devices and a children's slide. The pool will feature a zero depth entry. The interior will be a white special aggregate interior. The pool configuration will include a deck level gutter and a trench grate and floor inlets spaced no less than 20 foot intervals. The circulation system will include regenerative media filtration, automated water analyzer system, and sanitizer system. The design includes two fitness lap lanes with a water depth of 3'6" to 5'0".

The lazy river is approximately 180 feet in length and 8 feet wide. Attached to the river are a plunge pool, and a catch pool with a water walk. The river also contains an action channel, which provides spraying water, dumping water, and rapids. A passive path is also available to circumvent the action channel. On the one side of the river is a vortex. This is an area people are propelled in a circular path. A wave generator in the river is designed to provide ride variety.

The construction for this body of water will be different than the other pools. A freeboard is the height of the wall from water level to the top of the deck. The height of the freeboard will be 2 feet around a majority of the pool. The freeboard increases in the area of the wave generator. The wave generator will be capable of creating waves of up to 18 inches.

There are multiple means of access to the river. The primary access to the river is with a ramp. This allows riders to wade into the water to a point where they are able to sit in a

tube and begin to float. The secondary and tertiary means of access are through the water slide and the water walk catch pool.

The water slide is located in the corner of the natatorium. The slide tower has two slides from which riders may choose. One slide is an enclosed inner tube slide and is a means of access into the lazy river through the slide's plunge area. The plunge area is also equipped with stairs so that riders may exit the pool and quickly get back to the stairs of the slide tower. The second slide is an open body slide that ends in a rundown lane on the deck.

The water walk catch pool is located in the island of the lazy river and is accessible by a bridge over the river. The water walk is a series of floatables tethered to the floor with netting overhead. This provides a challenging event for swimmers. There are three means of egress to the catch pool for the water walk. Two are grab rails and in-wall steps located in the center of the north wall, and in the southwest corner of the catch pool. The third is an opening between the catch pool and the lazy river. It is the consulting team's recommendation that the opening between the river and the catch pool be used as a means of exit only.

The freeboard of the water walk catch pool will be 8 inches. Since water will seek its own level, this means that the deck for the island will be 10 inches lower than the elevation of the deck. The bridge will be designed to accommodate this change in elevation.

Indoor Adult Whirlpool:
The adult whirlpool will be a concrete shell and, approximately 300 square feet and of a freeform shape. This pool will be 3’6” deep. Hydro therapy Jets will be placed approximately 3 feet on center in the bench and in the bubble bed. This whirlpool shall have a transfer wall for accessibility.

Indoor Family Whirlpool:
The family whirlpool shall be a concrete shell, approximately 360 square feet and of a freeform shape. This pool shall be 3’6”deep. Hydro-therapy jets will be placed approximately 3 feet on center in the bench. This whirlpool will have ramp access, as well as, a transfer wall for accessibility.

Indoor Therapy Pool:
The wellness pool will be a concrete shell, approximately 1200 sq. feet in a curvilinear shape. This pool will vary in depth from 3’6” adjacent to the steps and extend to a maximum depth of 4’8”. The pool will feature a recessed step entry and an accessible ramp. The interior finish of the pool will be ceramic tile for durability and ease of maintenance. The pool configuration will include deck level gutters and wall inlets spaced no less than 20 foot intervals.

Key Design Assumptions

Pool Structural:
Soil bearing pressure greater than or equal to 2500 lbs/sq ft
Equivalent fluid pressure lateral load for pool walls less than for equal to 50lbs/cubic ft
Water table below bottom pool slab
Owner will provide a geotechnical report to confirm assumptions

Pool Mechanical:
High performance systems, efficient systems are desired.
230/460 V, 3 phase power will be available and brought to the pool mechanical room.
Potable water will be supplied to the pool mechanical room.
Potable water analysis will be provided to determine pool chemicals.
Pool chemical and fresh water fill systems are to be automated.

Pool Finish:
A special aggregate pool finish is proposed for all the pools. All racing lanes, targets, trim tiles and markings shall be tile.

General:
All basic pool mechanical, deck, safety and play equipment will be provided as part of the Contract Documents.

Performance Goals:
The pool design will appeal to users of all age groups and abilities with the water. The pool will be designed structurally in accordance with all geotechnical recommendations. The gutter design, main drain system, and the pool auto fill system will maintain the required water level for correct skimming at all times. The mechanical and filtration system will provide pristine water quality while conserving water and energy use over traditional systems.

Option E: Indoor National Aquatics Center

Building	number	size	total	unit cost	subtotal
Natatorium	1	82,000	82,000		
Meet Management	1	400	400		
Natatorium Storage	1	2,000	2,000		
Mechanical Room	1	2,000	2,000		
Chemical Storage	1	200	200		
Lobby	1	2,000	2,000		
Concessions	1	1,200	1,200		
Concessions Storage	1	300	600		
Offices	6	100	600		
Conference Room	1	600	600		
Locker Room	2	2,000	4,000		
Family Changing Room	10	100	1,000		
Team Locker Room	4	750	3,000		
Guard Office	1	500	500		
First Aid Room	1	300	300		
Party Room	3	500	1,500		
Therapy Pool Office	1	250	250		
Meeting Room	5	600	3,000		
Spectator Restroom	1	800	800		
Coach's Office	4	120	480		
Janitor	1	400	400		
Storage	1	600	600		
Subtotal			111,630		
Net to Gross	25%		27,908		
Building Subtotal			139,538	$250	$34,884,375
Leisure Pool			6,000	$350	$2,100,000
Program Pool			6,150	$285	$1,752,750
Wellness Pool			1,200	$285	$342,000
Diving Pool			3,375	$875	$2,953,125
Competition Pool			13,050	$250	$3,262,500
Family Whirlpool			1	lump sum	$350,000
Whirlpool			1	lump sum	$231,500
Building Total					**$45,876,250**
Site			size /no.	unit cost	subtotal
Outdoor Deck			3,000	$20	$60,000
Surface Parking			700	$4,500	$3,150,000
Site Total					$3,210,000
Building / Site Total					*$49,086,250*
Design/Estimating Contingency	20%				$9,817,250
Estimated Construction Costs					**$58,903,500**
Estimated Soft Costs				Remarks	
A/E Fees	11.57%			$6,815,135	
WSST	9.00%			$5,301,315	
Permits	3.00%			$1,767,105	
Construction Contingency	7.00%			$4,123,245	
Soils / Geotech Survey	ls			$15,000	
Testing / Inspection	1.00%			$589,035	
Telecom	2.00%			$1,178,070	
Hazmat Survey	assume NA				
FF&E	5.00%			$2,945,175	
Legal	1.00%			$589,035	
Survey	ls			$50,000	
Owners Project Management	2.00%			$1,178,070	
Document Reproduction	0.50%			$294,518	
Estimated Soft Costs					**$24,845,702**
Estimated Project Costs					**$83,749,202**

NOTES

1. Sizes are preliminary and will be verified in future design studies.
2. The parking spaces indicated are for typical levels of use and may need to be supplemented with offsite parking, structured parking, or shuttling for competitive swim meets. It is estimated that 1,000 parking spaces will required for competitive venues, with the balance provided off-site. Providing structured parking in lieu of surface parking would add approximately $22.5 million to construction costs and $8 million to soft
costs.
3. Estimated costs are based on Spring 2008 construction costs for the Bellevue/Seattle metropolitan area. Estimates will need to be refined/updated during each phase of design to reflect anticipated construction costs. Given the fluctuation of the construction market, one can anticipate a ±20% accuracy range on the estimate provided, depending on when the construction of any center would be initiated.
4. Each site may have additional site costs based on unusual site attributes, development requirements, and potential relocation of facilities/programs. These costs are not included.
5. "Net to Gross" reflects the ratio of programmed building area to overall building footprint. It includes walls, circulation, communications and electrical rooms, fire suppression rooms, storage, etc. A 25% net to gross ratio is a typical percentage for this type of facility at the feasibility phase.
6. A 20% Design Contingency is typical at the feasibility phase of a project. This percentage will be reduced at subsequent phases and will reach 0% at the end of contract documents.
7. A/E Fees are based on the Washington State Office of Financial Management, Prescribed Fee Percentage, plus 5% for additional services consultants based on the AIA Guidelines.