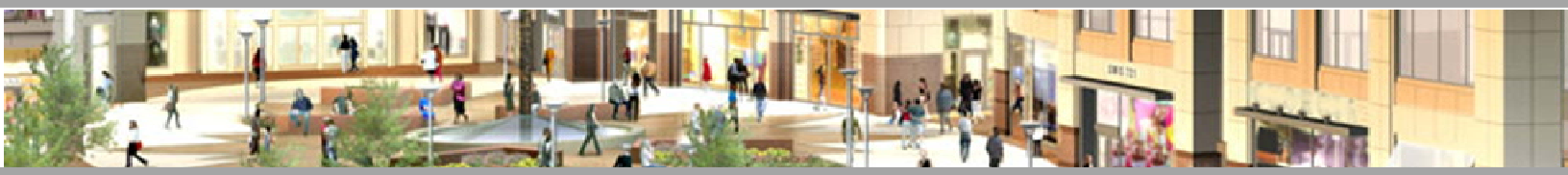
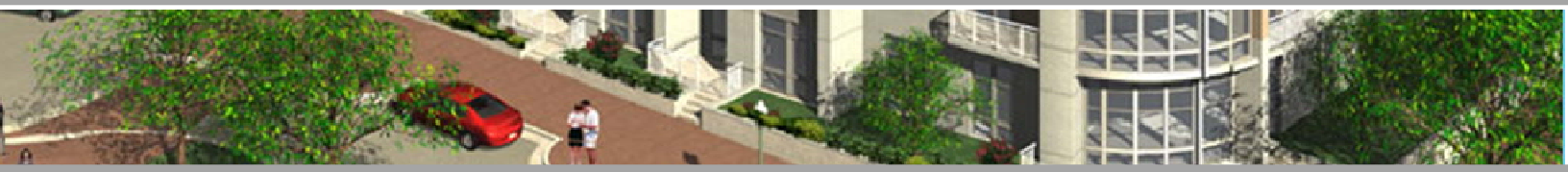
Wisconsin Place Residential

Chevy Chase, MD



Jenna Marcolina
Construction Management



Technical Assignment #1
October 5, 2007

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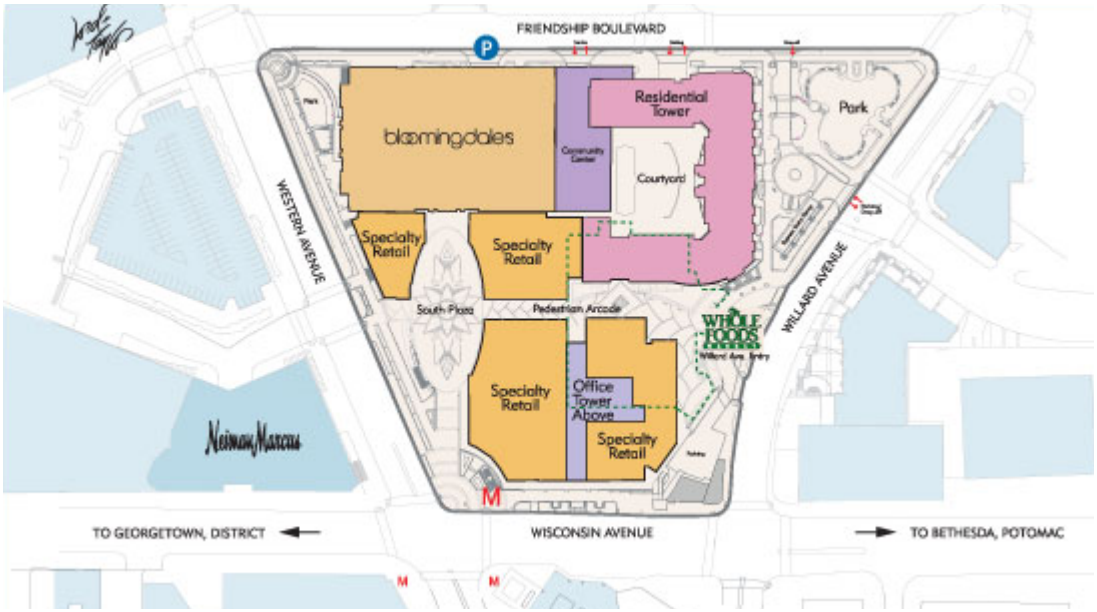
Executive Summary

This technical assignment describes the construction management methods employed by Turner Construction Company on the Wisconsin Place Residential project in Chevy Chase, Maryland. It will summarize the project schedule and budget as well as building systems and site logistics. A brief overview of the project delivery system and staffing plan will also be presented.

Archstone-Smith Trust, a prominent developer in the Washington, DC area, hired Turner as the general contractor for the 15 story, 485,000 square foot GMP project that began construction in June 2007. WPR is only part of a 1.1 million square foot mixed use development known as "Wisconsin Place" that includes high end retail, restaurant, and office space. A basic site plan below depicts the proposed layout. Wisconsin Place presents a very unique situation. Due to the magnitude of the project, it has been divided into four main parts and the work was awarded to four separate general contractors. They are assigned as follows:

1. Turner- parking garage
2. Turner- residential tower
3. Centex- office tower
4. TBD- retail

Three developers are also involved in the massive project: New England Development, Archstone-Smith Trust, and Boston Properties, Inc. Each firm has a specialized interest in Wisconsin Place, and three grand visions will be realized in its construction. It will be interesting to see how all of these players interact and cooperate on a congested site in the middle of the city.



A. Project Summary Schedule

Foundation

Wisconsin Place Residential sits directly on top of a four level below grade parking garage. Therefore, no foundation system is required for the residential tower. Turner is the General Contractor on the parking garage project, but that is an entirely separate job with separate team members. Construction of the parking garage is still in progress, which poses daily challenges to both Turner teams working in such close quarters. Weekly coordination meetings alleviate site congestion problems.

The parking garage is supported by spread footings and foundation walls and was designed to carry the full load of the residential tower above. Turner entered the WPR site in June 2007 to pour the 1st floor slab, and construction has progressed from there.

Structural

The post tensioned concrete structure is built floor by floor. The specifications mandate that at least one floor be fully formed or shored with a minimum of 3 floors reshored at any time. This ensures the concrete has fully cured and reached its maximum compressive strength before the forms are released, keeping the building and the workers safe. Concrete reaches its minimum stressing strength within 72 hours of pouring, and the tendons should be stressed within 96 hours of pouring.

The slabs are typically broken into 3 to 5 sections for pumped concrete pours. To track progress more closely, Turner has created a concrete pour schedule that is updated daily. The schedule projects that they will pour 15,893 SF of concrete per week in 32 weeks. The average area of a pour is 6,228 SF. Since the columns are poured at the same time as the slab, they, too, are broken into 3 to 5 portions and are poured accordingly.

Finishes

The finishes of the building are installed from the first floor up, and trades are staggered as necessary to avoid field collisions and counter productivity. Finishes will be installed in the following order:

Light Fixtures
Drywall
Ceilings
Ceramic Tile
Cabinets and Counters
Finish Paint
Flooring
MEP Trim-Out

B. Building Systems Summary

Work Scope	Yes	No
Demolition Required?		x
Structural Steel Frame		x
Cast in Place Concrete	x	
Precast Concrete		x
Mechanical System	x	
Electrical System	x	
Masonry	x	
Curtain Wall		x
Support of Excavation		x

Cast in Place Concrete

The building structure consists of concrete columns and post-tensioned concrete slabs. The 7-wire stress-relieved strands are unbonded and spaced at no more than 5 feet apart. A minimum of 2 tendons in each direction is required directly over columns.

A pump is used to place the massive amounts of concrete that form the building slabs; crane and bucket just does not make sense on a project of this size. As mentioned before, the slabs are broken into 3-5 sections to make the pours more efficient. The 7 ½ inch thick slabs use 5,000 psi concrete.

Two types of formwork are used for the structure of the building: plywood and preassembled. Currently, the concrete subcontractor is using the preassembled to expedite the process. The preassembled formwork is one unit connected by joints that easily snap together with anchors and fasteners. It is reusable and conducive for such a large project. Snap-off form ties hold the formwork together and a colorless, non-staining form release agent is used to lubricate the forms.

Mechanical System

All of the major mechanical equipment is located on the penthouse level. Each apartment unit contains a small AHU to regulate temperature and air flow. This makes each apartment independent of the next and optimizes comfort control for residents. Placing the large cooling towers and air handling units on the roof also minimizes noise throughout WPR. No one ever wants to rent the apartment adjacent to a mechanical room because it generates so much noise, heat, and vibration. The mechanical system features automatic temperature controls and a submetering system.

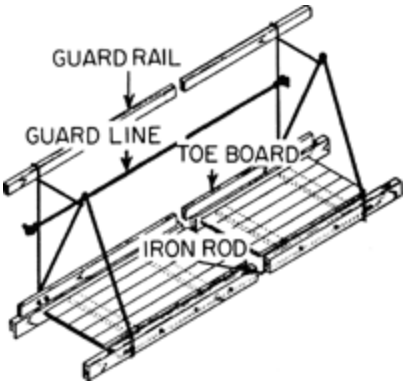
The constant air volume system includes open and closed loop filtration to service WPR. The penthouse contains 5 rooftop units made up of a compressor, supply air, heating and cooling coil that operate on 480 Volt 3 phase power. Two cooling towers with a 48 gpm pump also inhabit the penthouse. They operate at a 1450 gpm flow rate between temperatures of 85 to 95 degrees Fahrenheit. A sand filtration and UV disinfection

system help purify the water that passes through the cooling towers, and nitrites are added to further cleanse the system.

A hydronic fire protection system, consisting of wet and dry standpipes, is to be installed throughout the building. Sprinkler heads are located below the ductwork and above light fixtures in finished spaces. A supervised shut-off valve, flow detector, drain line, and inspector's test connection are to be provided at each connection between standpipes and sprinkler systems. Where water pressure exceeds 100 psig, automatic pressure restricting fire hose valves are to be provided.

Electrical System

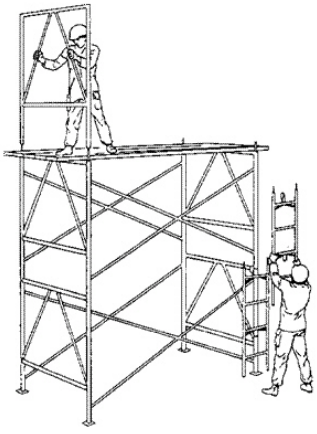
Wisconsin Place receives a main feed of 3 phase 2,000 Amp service from the existing switchboard in the parking garage electrical room. Each apartment has its own 120/208 Volt panel along with an individual metering unit. This makes it possible to bill each apartment separately for electricity and saves the owner a lot of work. A 350 kW standby emergency generator is located on the roof. Small electric rooms are located on each floor of the apartment building, while a larger main electric room is located on the penthouse level.



Masonry

Many non-load-bearing materials constitute the façade of Wisconsin Place, including glass, glazing, aluminum-faced composite wall panels, brick, precast and cast stone, aluminum window system, aluminum metal panel system, and pre-finished steel channels.

The brick exterior wall system is comprised of ½ inch gypsum board followed by a 6 mil polyethylene vapor barrier. R13 batt insulation lines the space between the gypsum and 4 inch light gauge steel studs topped with ½ inch sheathing and asphalt felt. Galvanized brick ties fasten the brick to the façade, and continuous flashing extends 1/8 inch beyond the face of the brick for proper drainage. Cell vents are placed at 24 inches on center horizontal above finish grade where flashing does not cover the brick.



The cast stone exterior wall system is very similar to the brick wall system. Galvanized brick ties hold cast stone in place while ½ inch mortar joints are left between each row of stone. Weep holes are located at 24 inches on center to allow water to escape.

There are two types of scaffolding being used on the project, as depicted by the figures on this page. The 1st through 3rd floor masonry will be applied using a typical two frame built up scaffolding system shown to the right. This basic form of

scaffolding is constructed from the ground up but becomes dangerous at high levels. It must be fastened to the building in some way to prevent collapse or tipping. To prevent this hazard, swinging scaffolding is used for the 4th through 15th floors. Swinging scaffolding is suspended by ropes or cables from a block and tackle attached by roof hooks and can be raised or lowered to any height. This is convenient for tall buildings like WPR because it is so versatile.

C. Project Cost Evaluation

Actual Project Cost Information

The total square footage of Wisconsin Place is 484,960 gross SF, 395,503 net SF, with an average efficiency of 81.55%.

Construction Cost: $85,115,971
CC/SF: $175.51/SF

Total Project Costs: $93,394,462
TC/SF: $192.58/SF

D4 Cost 2002 Estimate

The D4 Cost Estimate can be found in Appendix A.

To estimate the cost of Wisconsin Place Residential, three buildings of similar size and function were selected from the D4 Cost Estimating Program. This was a challenging task because there were no residential buildings taller than 9 stories to use for the comparison. Other building types that matched the story height/square footage were of an entirely different function, which could severely affect the results of the averaging. For example, medical facilities cost a great deal more per square foot than residential buildings. The following three buildings were selected to use in the D4 Cost 2002 averaging analysis:

Project Name	Size (SF)	Use	Floors	Cost
201 Turk St. Apt. Complex	215,260	Residential	9	$18,026,908
Tenth Street Place	472,680	Commercial	6	$27,859,400
Univ. Hosp. of Cleveland	584,000	Medical	17	$102,785,582

201 Turk Street Apartment Complex was used because the function is the same; therefore, the price per square foot should match even if the total cost is lower than that of WPR. The second building that was used for the comparison was a commercial building, Tenth Street Place. This seemed appropriate because WPR contains some public features like the Click Café, Caliber Sports Club, and Club Suite viewing room. The final building used in the D4 estimate was a hospital that is quite different in function, but matched the size and number of floors most closely.

The True Averaging function was used to compare the three selected buildings with a target information date of June 2007, the project start date. D4 produced a building estimate of $95,816,039, which is fairly close to the actual cost of Wisconsin Place mentioned above. These accurate results were not expected, especially since there were not many similar buildings to select for the comparative averaging.

RS Means 2007 Cost Estimate

The reference page from RS Means 2007 can be found in Appendix B.

The following RS Means Estimate was performed using the information for a Commercial/Industrial/Institutional Apartment, 8-24 story building. The exterior wall system was assumed to be face brick with concrete block back- up. Note that additives of appliances and elevators were included to make the estimate more accurate.

Apartment - 15 stories- 9' average story height
SF Area = 484,960 SF
LF Perimeter = 1053 LF

Through interpolation → Unit Cost = $131.59/SF

Adjust for additional perimeter: 457.48 LF
Through interpolation → Add $1.83/SF per 100 LF additional perimeter
Adjusted Unit Cost = $131.59/SF + (457.48 LF/100 LF)($1.83/SF) = $139.95/SF

Adjust for story height: 9'
Through interpolation → Deduct $1/SF for lower story height
Adjusted Unit Cost = $139.95/SF - $1/SF = $138.95/SF

Baltimore, MD Location Modification Factor: 0.90

Adjusted Unit Cost = $125.06/SF

Estimated Project Cost = $125.06/SF * 484,960 SF = $60,649,100

Additives:

Appliances:

Cooking range, 30" built-in, 1 oven	$2,050 each
Microwave oven	$720 each
Dishwasher, 4 cycles	$1125 each
Garbage disposer	$281 each
Refrigerator, 20 CF	$1050 each
Washer/Dryer	$1815 each

Total Unit Cost for Appliances = $7,041/unit * 432 units = $3,041,712

Elevators:

Elevators, 3,000#	$1,544,375 total

Total Additives = $4,586,087

Total RS Means Estimated Cost = $65,235,187

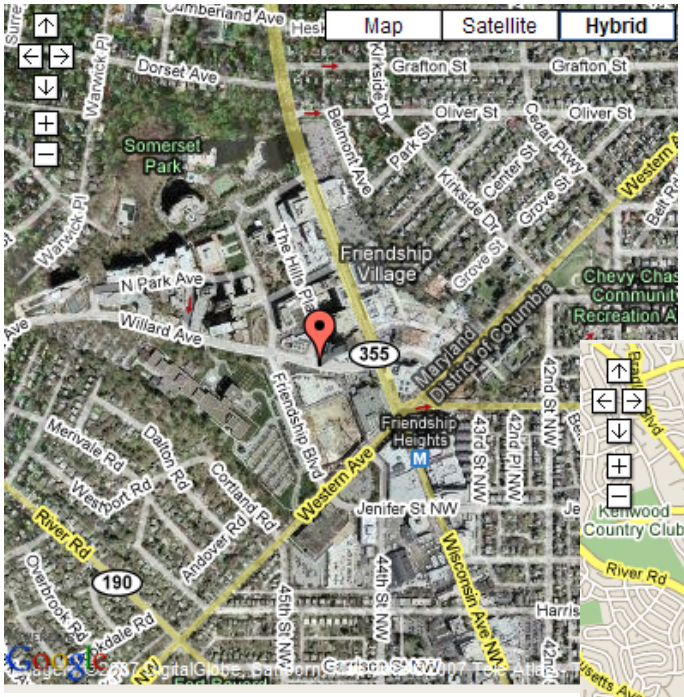
This number is significantly lower than the actual project cost of $93,394,462, which can be attributed to the assumption that the façade is all face brick. Many other materials constitute the building exterior and cost more than brick. Another cause for this low estimate is the fact that Wisconsin Place is a high end apartment complex with top-of-the-line everything, not just kitchen appliances that were factored in. This RS Means estimate also may not be accounting for general conditions, and this could be a reason for such a low estimate.

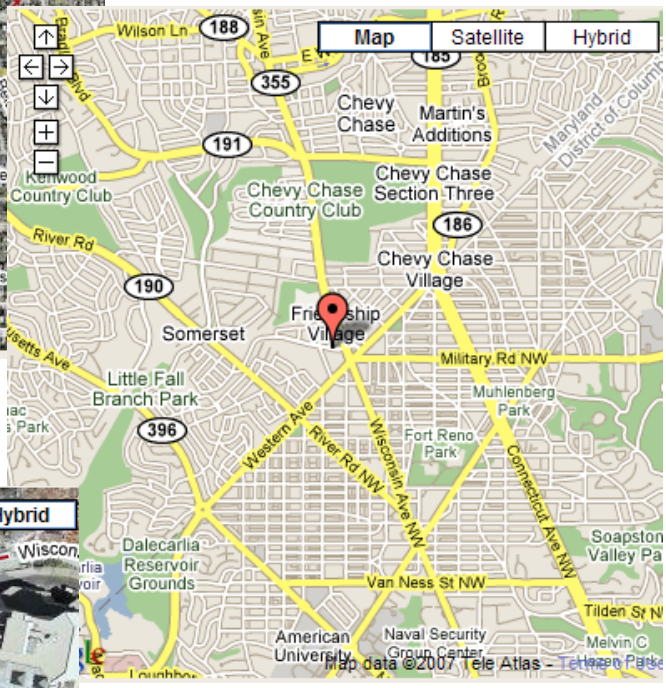
D. Site Plan of Existing Conditions

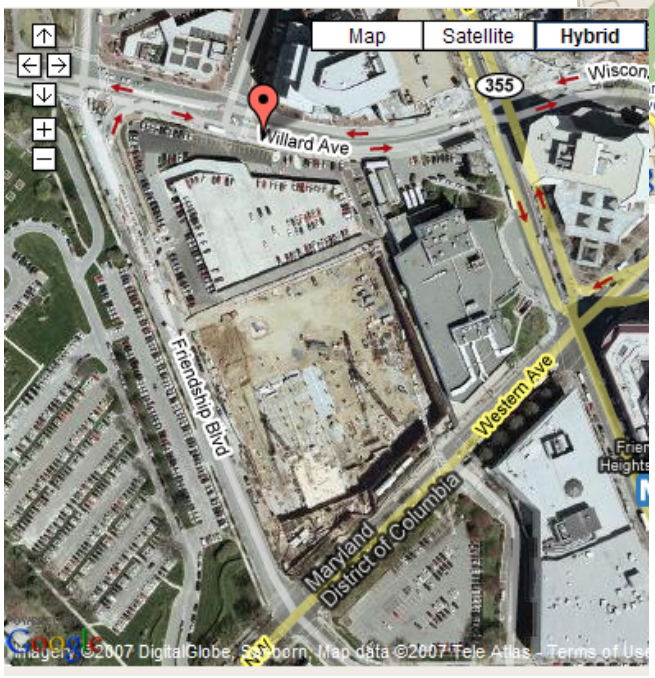
The site utility plan can be found in Appendix C; the site logistics plan can be found in Appendix D. Vicinity maps are on the following page.

The site logistics of this Turner project are unique because there are no civil plans. As mentioned earlier in this technical report, WPR is being constructed on top of an existing 4 level parking garage that is managed by a Turner team independent of this residential building. Just as the parking garage structure was designed to fully support the load of the tower above, it was also equipped to provide full utility service to WPR. So, existing utilities are not a concern for the project team because they have already been conveniently tied into the building. The parking garage crew distributed electrical, fuel, and water lines 5 feet into WPR through the first floor slab for easy hook-up access. Essentially, Turner will not be touching any public utilities because all of the “dirty work” has been done for them. This is reflected in the site plan, as very few existing utility lines are shown. Again, this was part of a separate project that was not the responsibility of WPR Turner. The neighboring buildings in the area of Chevy Chase are mostly commercial and include restaurants, retail, and office buildings. Residential towers also populate the area of Chevy Chase.

Vicinity Maps: Friendship Heights, Chevy Chase and Surrounding Areas







E. Local Conditions

Concrete structures, especially pre-stressed systems, are common to the Maryland/Washington, DC area due to labor availability. If the workers are local this will most likely reduce the cost of labor due to competitive bidding and volume of subcontracting companies. Concrete is a viable option due to the extreme site congestion. Steel requires laydown and staging areas and is a permanent fixture on site until erection is complete. Concrete, on the other hand, arrives in a truck each day and leaves the site when it is finished. This certainly eliminates site storage of material. Steel erection is also a crane intensive activity, while concrete only utilizes a pump truck that arrives just before the concrete truck. Post tensioned concrete is a much faster process than cast-in-place concrete because the slabs can be stressed, stripped, and reshored when the concrete reaches 75% of its ultimate 28 day strength.

Since the WPR site is located in the middle of a city, parking is very limited. Currently, no site parking is available to subcontractors or Turner team members. The site is too congested to have vehicles parked on it. People with cars and small SUV's park in nearby parking garages, while larger trucks utilize street parking. As with any urban project, parking is an unavoidable headache that will only increase as more and more subcontractors enter the site.

The soil conditions were not a concern for Wisconsin Place because the geotechnical analysis was covered by the parking garage project. The parking garage sits on a very sturdy foundation of solid rock which was hit almost immediately after excavation began. Spread footings and slab on grade were then a suitable foundation system since they sat upon such stable sub grade. The column and wall footings are designed for a bearing pressure of 40,000 psf.

F. Client Information

Archstone-Smith, the owner of Wisconsin Place, is recognized in the Washington, DC area as a leader in apartment investments and operations. A partnership of two major developers, Archstone and Charles E. Smith, they pride themselves on a strong 56-year legacy in the greater Washington D.C. market. Consequently, Archstone-Smith ranks as one of the largest apartment owners and operators, with more than 21,000 apartments in greater Washington, D.C. Their market also focuses on the most desirable neighborhoods in Southern California, the San Francisco Bay Area, the New York metropolitan area, Seattle, and Boston. The company's mission is "to leverage the talents and resources of our organization to reinvent our industry and create value for our shareholders, customers and associates."

Archstone-Smith sees Chevy Chase as a very up-and-coming location in Maryland. It is quickly developing into a posh upscale region inhabited by young professionals and families. Their primary interest in this project is the monetary aspect. Downtown apartments are a highly lucrative market that Archstone-Smith has been capitalizing upon for decades.

Archstone-Smith is dedicated to ensuring cost, quality, and schedule performance and it shows in their involvement in the project. They have one representative who is permanently positioned on site. He is the liaison to the owner and keeps Archstone-Smith closely connected to Turner. Another representative visits the site about once a week to attend coordination and progress meetings.

There are two sequencing issues of principal concern to the owner. Those are access to the site and concrete pours. With four separate projects happening concurrently, logistics are of utmost importance. Painstaking planning is required to ensure each GC can get their labor and materials to the site every day. Working in such close quarters makes it difficult to allocate storage and laydown areas as well. There are currently 3 cranes on site that belong to Turner. A fourth crane is being utilized by the general contractor on the office building and is in close proximity to the other 3 cranes. Turner has closed down a lane of traffic on Friendship Boulevard and Willard Avenue to alleviate some site traffic flow problems.

Concrete pours are also time-critical. Since the residential tower sits atop the parking garage and community center, its schedule is dependent on the timeliness of concrete pours that Turner cannot directly control. Any delays in concrete placement will severely affect the schedule. To avoid this issue, Turner has developed a detailed concrete pour schedule that breaks down each concrete pour by level and section and facilitates closer progress tracking.

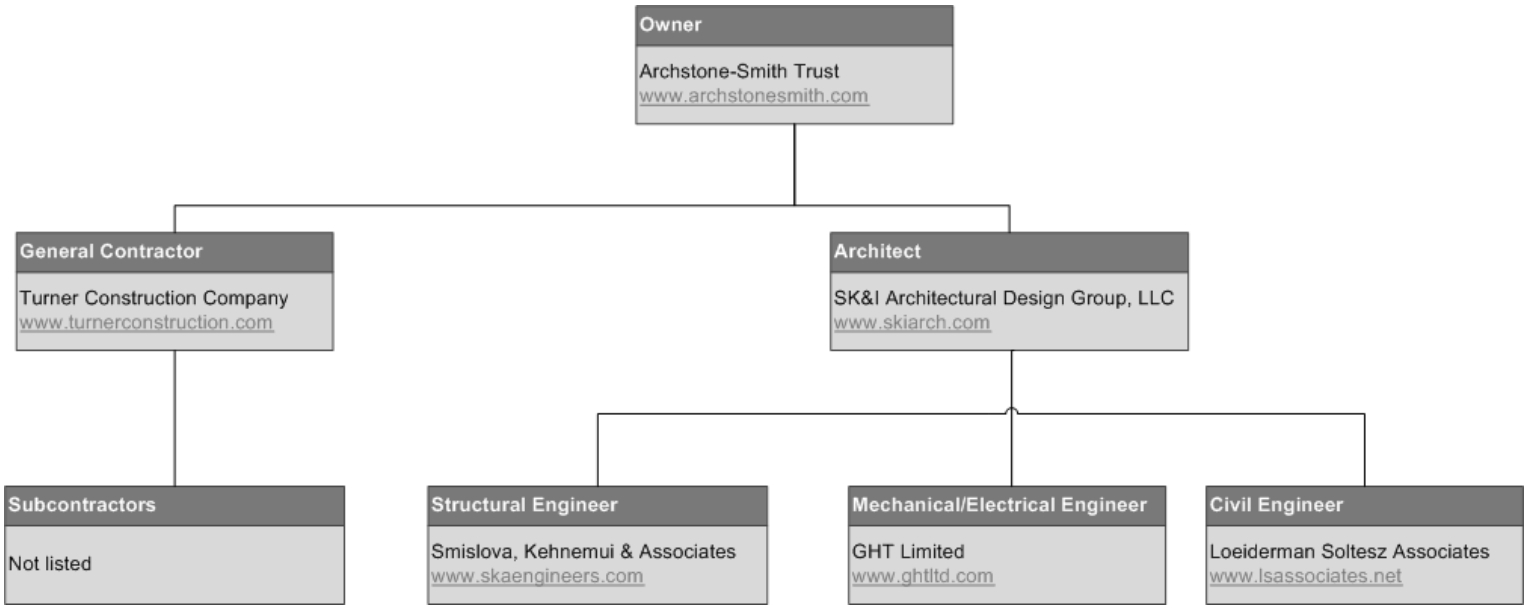
G. Project Delivery System

Turner acts as the General Contractor on Wisconsin Place and provided comprehensive pre-construction services to the development team over a 28 month period. Archstone-Smith chose a GMP because the design was incomplete when the project went out to bid. The GMP provides built in flexibility in the form of allowances for the uncertain portions of work. For instance, the GMP budget for WPR has allocated funds such as "Plumbing Allowance" or "Electric Allowance" to accommodate changes or refinements to design.

Turner holds a CCIP with most of their subcontractors, which includes worker's compensation and general liability insurance. This CCIP also covers payment and performance bonds. Some subcontractors are classified as "high risk" and are required to provide individual bonds to Turner to ensure they are covered. For example, Otis Elevator was not part of the CCIP, so they will provide their own bond for the duration of the project.

All of the contract types held between Turner and subcontractors are lump sum. This is a typical contract arrangement and allows for change orders to easily reimburse costs that exceed the project budget.

The owner would not disclose the types of contracts held between Archstone-Smith and their hired consultants. However, Turner explained that they are most likely service agreements, which means that each firm establishes a fixed price for defined services and the owner pays for additional services beyond the defined scope. For example, a service agreement between the owner and the structural engineer may include drawings and test reports. If the owner decides at a later date that he would like this engineer to attend weekly meetings on site that would be an additional charge beyond what is outlined in the contract.

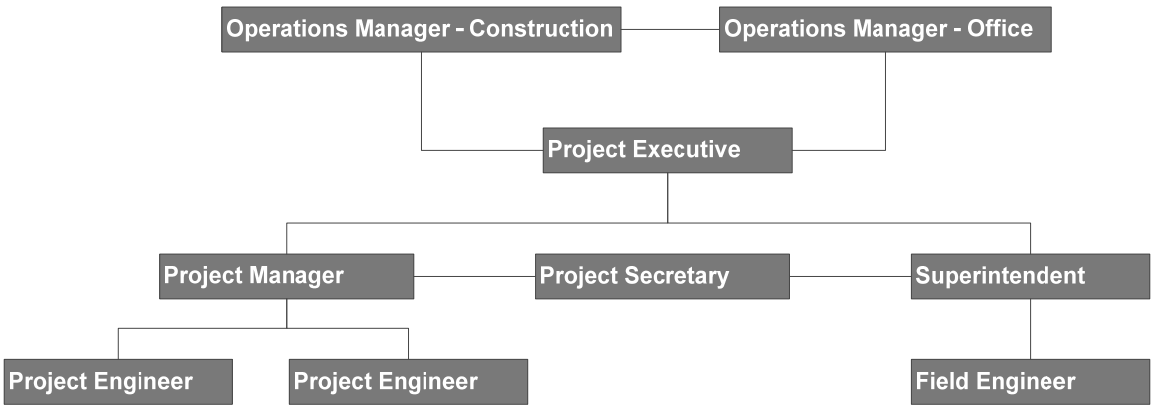


H. Staffing Plan

The project team works very closely together on WPR. Dealing with a project of this magnitude, there is really no other way. On a typical day they will encounter numerous pressing issues that need to be resolved in a short time frame to keep the project moving. In a single day, one project engineer was juggling tracking the status of cast stone for the façade, working with the architect to change the anchors for the window washing system, and getting the sprinkler system approved by the county, all critical tasks.

Two operations managers monitor all Turner projects in the Maryland territory, an enormous job considering there are currently about 64 projects underway in the region. One operations manager takes care of the construction side, and the other takes care of the office side. An assistant visits the site every six weeks to address scheduling, budget, or staffing issues. He then reports back to the operations managers who will repair any imbalances.

Both the project executive and project manager are on site 100% of the time. The project executive communicates more with the owner while the project manager is more closely associated with project-specific operations. The project manager is described as the “problem solver” by team members. He uses his work experience to come up with solutions before an RFI has to be sent out to the architect. The project engineers essentially build the project on paper in the form of submittals and drawing control before it is physically built in the field. They are responsible for ensuring materials arrive to site in time. From here, the superintendents take over and oversee the installation of these materials on site. A field engineer is an entry level superintendent. He performs the same tasks and responsibilities as the main superintendent but under supervision. The on-site project team meets once a week with the owner to discuss current issues and look ahead schedules.



Appendix A: D4 Cost Estimate

Estimate of Probable Cost

Wisconsin Place Residential - Jun 2007 - MD - Other

Prepared By:	**Jenna Marcolina**	Prepared For:	**Technical Assignment 1**
	,		,
	Fax:		**Fax:**
Building Sq. Size:	**450526**	Site Sq. Size:	**1505280**
Bid Date:	**6/1/2007**	Building use:	**Residential**
No. of floors:	**15**	Foundation:	**N/A**
No. of buildings:	**1**	Exterior Walls:	**MAS**
Project Height:	**143**	Interior Walls:	**DRY**
1st Floor Height:	**11**	Roof Type:	**BAL**
1st Floor Size:	**23159**	Floor Type:	**WOD**
		Project Type:	**NEW**

Division		Percent	Sq. Cost	Amount
00	**Bidding Requirements**	**6.78**	**14.42**	**6,496,461**
	Bidding Requirements	6.78	14.42	6,496,461
01	**General Requirements**	**2.13**	**4.53**	**2,041,227**
	General Requirements	2.13	4.53	2,041,227
02	**Site Work**	**3.54**	**7.53**	**3,391,307**
	Site Work	3.54	7.53	3,391,307
03	**Concrete**	**9.92**	**21.09**	**9,500,501**
	Concrete	9.92	21.09	9,500,501
04	**Masonry**	**6.92**	**14.71**	**6,625,720**
	Masonry	6.92	14.71	6,625,720
05	**Metals**	**9.26**	**19.70**	**8,875,269**
	Metals	9.26	19.70	8,875,269
06	**Wood & Plastics**	**2.69**	**5.72**	**2,575,783**
	Wood & Plastics	2.69	5.72	2,575,783
07	**Thermal & Moisture Protection**	**2.06**	**4.38**	**1,971,165**
	Thermal & Moisture Protection	2.06	4.38	1,971,165
08	**Doors & Windows**	**6.44**	**13.70**	**6,174,217**
	Doors & Windows	6.44	13.70	6,174,217
09	**Finishes**	**11.99**	**25.51**	**11,491,019**
	Finishes	11.99	25.51	11,491,019
10	**Specialties**	**0.59**	**1.26**	**567,794**
	Specialties	0.59	1.26	567,794
11	**Equipment**	**1.27**	**2.71**	**1,220,062**
	Equipment	1.27	2.71	1,220,062
12	**Furnishings**	**0.88**	**1.88**	**847,170**
	Furnishings	0.88	1.88	847,170
13	**Special Construction**	**0.07**	**0.15**	**69,158**
	Special Construction	0.07	0.15	69,158
14	**Conveying Systems**	**1.70**	**3.61**	**1,626,678**
	Conveying Systems	1.70	3.61	1,626,678
15	**Mechanical**	**21.77**	**46.30**	**20,860,723**
	Mechanical	21.77	46.30	20,860,723
16	**Electrical**	**11.98**	**25.49**	**11,481,785**
	Electrical	11.98	25.49	11,481,785
Total Building Costs		**100.00**	**212.68**	**95,816,039**

Total Non-Building Costs	**100.00**	**0.00**	**0**
Total Project Costs	**--**	**--**	**95,816,039**

Appendix B: RS Means 2007 Reference

Costs per square foot of floor area

Exterior Wall	S.F. Area	95000	112000	129000	145000	170000	200000	275000	400000	600000
	L.F. Perimeter	345	386	406	442	480	510	530	570	630
R.base Precast Concrete Panel	Steel Frame	175.45	171.85	167.65	165.75	162.55	158.85	151.90	145.95	141.65
	R/Conc. Frame	163.05	159.50	155.60	153.75	150.65	147.30	140.60	135.35	131.00
Face Brick w/ Concrete Block Backup	Steel Frame	156.40	153.15	149.60	147.85	145.10	142.05	136.25	131.30	127.75
	R/Conc. Frame	158.00	154.70	151.15	149.50	146.70	143.70	137.95	133.10	129.55
Stucco on Concrete Block	Steel Frame	147.35	144.50	141.10	140.25	138.00	136.65	131.35	127.75	125.10
	R/Conc. Frame	148.90	146.05	143.30	141.95	139.65	137.35	132.10	129.50	126.90
Perimeter Adj.	Add or Deduct	Per 100 L.F.	9.20	7.70	6.75	5.95	5.05	4.35	3.05	2.15	1.40
Story Hgt. Adj.	Add or Deduct	Per 1 Ft.	3.05	2.75	2.55	2.45	2.25	2.05	1.60	1.35	.80
		For Basement add $29.70 per square foot of basement area								

The above costs were calculated using the basic specifications shown on the facing page. These costs should be adjusted where necessary for design alternatives and owner's requirements. Reported completed project costs for this type of structure range from $74.05 to $172.95 per S.F.

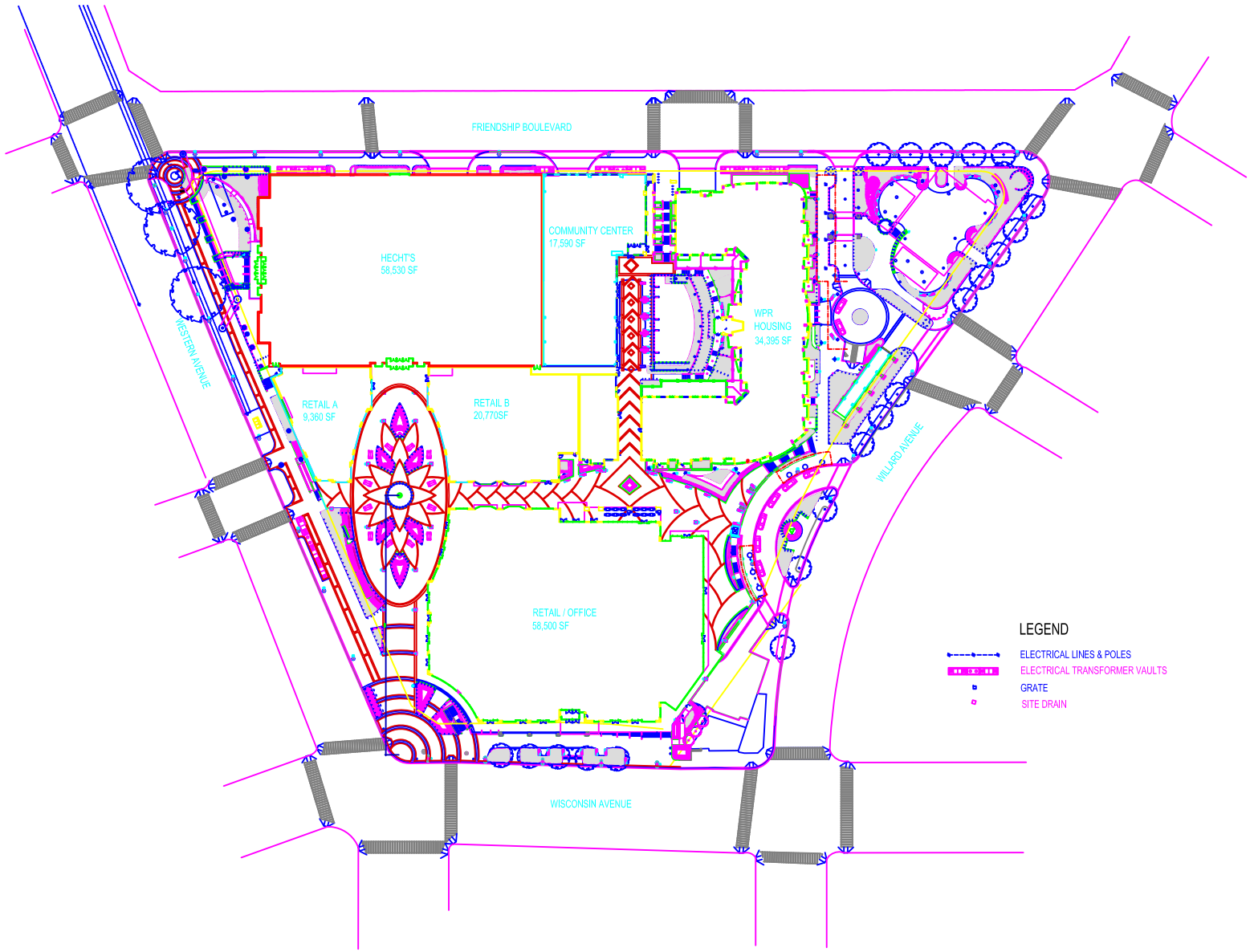
Common additives

Description	Unit	$ Cost
Appliances		
Cooking range, 30" free standing		
1 oven	Each	370 - 1375
2 oven	Each	1825 - 1975
30" built-in		
1 oven	Each	900 - 1050
2 oven	Each	1650 - 2250
Counter top cook top, 4 burner	Each	525 - 620
Microwave oven	Each	295 - 750
Combination range, refrig. & sink, 30" wide	Each	3450 - 4000
72" wide	Each	4300
Combination range, refrigerator, sink, microwave oven & icemaker	Each	5125
Compactor, residential, 4-1 compaction	Each	375 - 725
Dishwasher, built-in, 2 cycles	Each	460 - 870
4 cycles	Each	550 - 1125
Garbage disposer, sink type	Each	150 - 315
Hood for range, 2 speed, vented, 30" wide	Each	345 - 460
42" wide	Each	465 - 1025
Refrigerator, no frost, 10 - 12 cf	Each	550 - 770
18 - 20 cf	Each	675 - 1350

Description	Unit	$ Cost
Closed Circuit Surveillance, One station		
Camera and monitor	Each	1675
For additional camera stations, add	Each	910
Elevators, Electric passenger, 5 stops		
2000# capacity	Each	370,500
4000# capacity	Each	373,000
5000# capacity	Each	378,000
Additional stop, add	Each	7875
Emergency lighting, 25 watt, battery operated		
Lead battery	Each	385
Nickel cadmium	Each	770
Nursery Equipment		
Diaper changing station	Each	820
10 lb. capacity	Each	2525
Washer, 4 cycle	Each	695
Commercial	Each	1400
Smoke Detectors		
Ceiling type	Each	71
Duct type	Each	440

Important: See the Reference Section for Location Factors

Appendix C: Site Utility Plan



General Notes

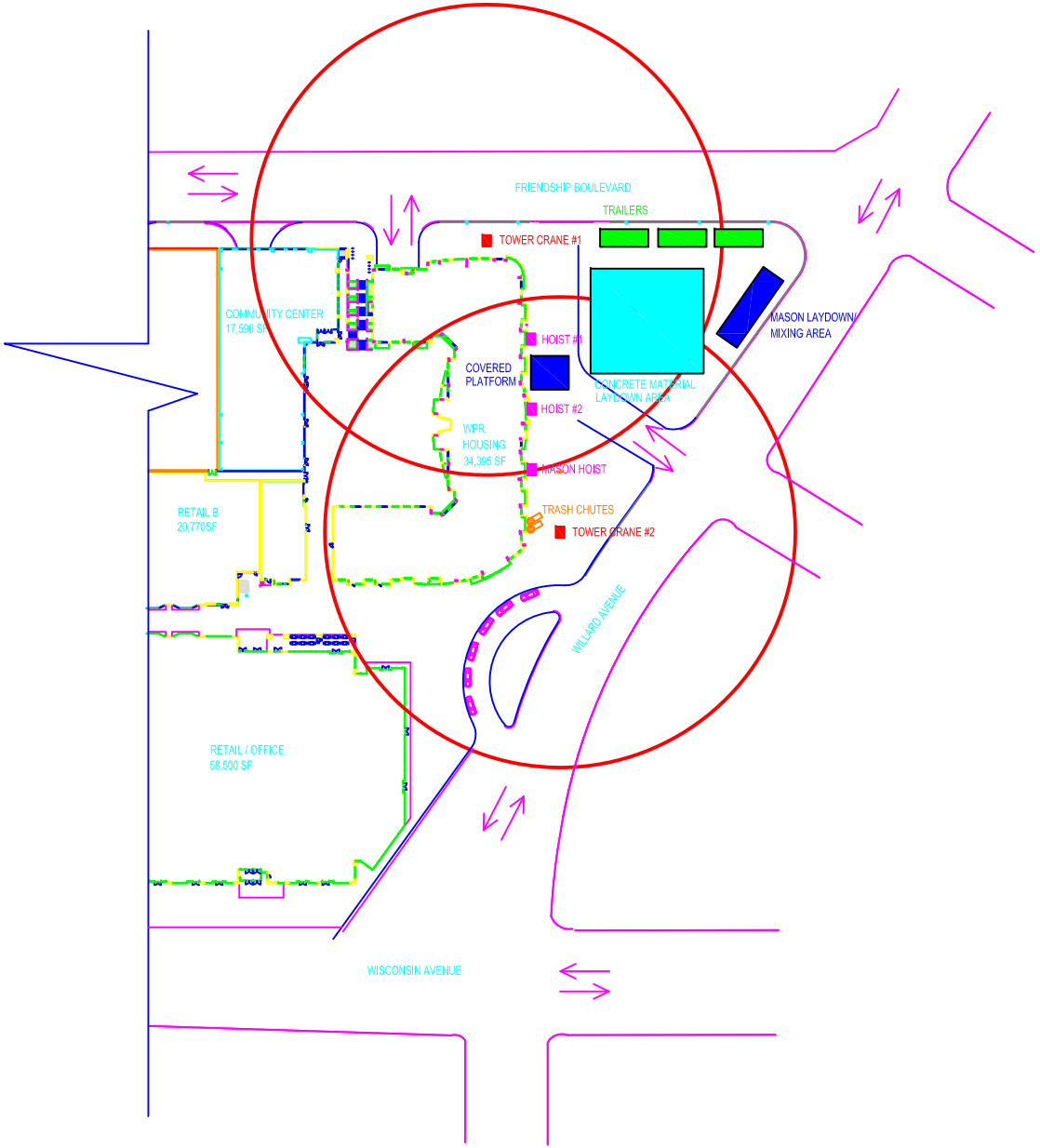
No.	Revision/Issue	Date

N

JENNA MARCOLINA

Project	Sheet
WISCONSIN PLACE RESIDENTIAL	
Date: 10/04/07	SITE UTILITY PLAN
Scale: NTS	

Appendix D: Site Logistics Plan



General Notes

No.	Revision/Issue	Date

N

JENNA MARCOLINA

Project: WISCONSIN PLACE RESIDENTIAL	Sheet: SITE LOGISTICS PLAN
Date: 10/04/07	
Scale: NTS	