USTAR and University of Utah Capital Cost Allocation Plan

Neuroscience and Biomedical technology Research Building (NBTRB)
USTAR and University of Utah Interdisciplinary Quadrangle
Marginal Campus Capital Cost Allocation Plan

May 5, 2008

As an outgrowth of the Campus Master Plan, an Interdisciplinary Quadrangle was conceived as the key component in the development of facilities that support the research enterprise for the University of Utah. The new Quad is the establishment of a new site which bridges between the University Main Campus and the Health Sciences Campus. The Quadrangle Master Plan was developed as a plan for long term development and establishment of the supporting infrastructure to accommodate the facilities associated with the Quadrangle. However, at this same time, an area Campus Utility Master Plan was developed to accommodate certain upgrades in existing systems and increases in capacity to serve this area of campus as a whole over time. In addition to the specifics of the Quadrangle site and utility development, an expansive long range plan was developed to consider the future needs of the University. The plan establishes an initial development as well as a projection of the incremental upgrades and added capacities as the growth of the University occurs.

The cost of the site development and utility infrastructure is to be prorated between USTAR and the University with a distribution of the cost to the various facilities that will benefit from the site development and utility expansion. The first phase of the project is the first research building in the quad and developed in association with USTAR. Other projects at this time are being developed by the University. The initial site and utility development has to be carefully considered as to the distribution of the cost of site development and the appropriate contribution for new utilities that will substantially advance the investment of the State of Utah. Further, it is important that the overall cost not be detrimental to the reasons that the funding was provided to the University of Utah. A request has been made to understand the marginal cost allocation of cost of initial development and the appropriate means of the financing of those costs. In essence, this situation is very similar to any marginal cost allocation for development, often referred to as impact fees.

Development marginal impact cost allocation is a one-time charge applied to offset the additional institutional costs associated with all new development. The costs are applied and are dedicated to provision of additional services, such as water and sewer systems, roads, paths and other support functions and facilities made necessary by the development of new buildings in the area. On many campuses today, funds are collected on an incremental basis from each new project to either offset debt that will be incurred to pay for the expansion or as an endowment to be used to create the new infrastructure over time. These funds are not for operation, maintenance, repair, alteration, or replacement of existing capital facilities. The marginal cost allocation amounts are roughly proportional to the burden created by the development. Essentially, prorated user costs must be levied in response to or in anticipation of use by establishing or expanding the capacity of existing services to handle additional demand. This contribution, in part, is to ensure that the individual projects, by utilizing capacity, do not adversely affect any other part of the campus. Any cost item must be clearly linked to the added cost, not some arbitrary amount.

The marginal cost allocation is in response to three contributors which can then be more equitably allocated to each increment of new development.

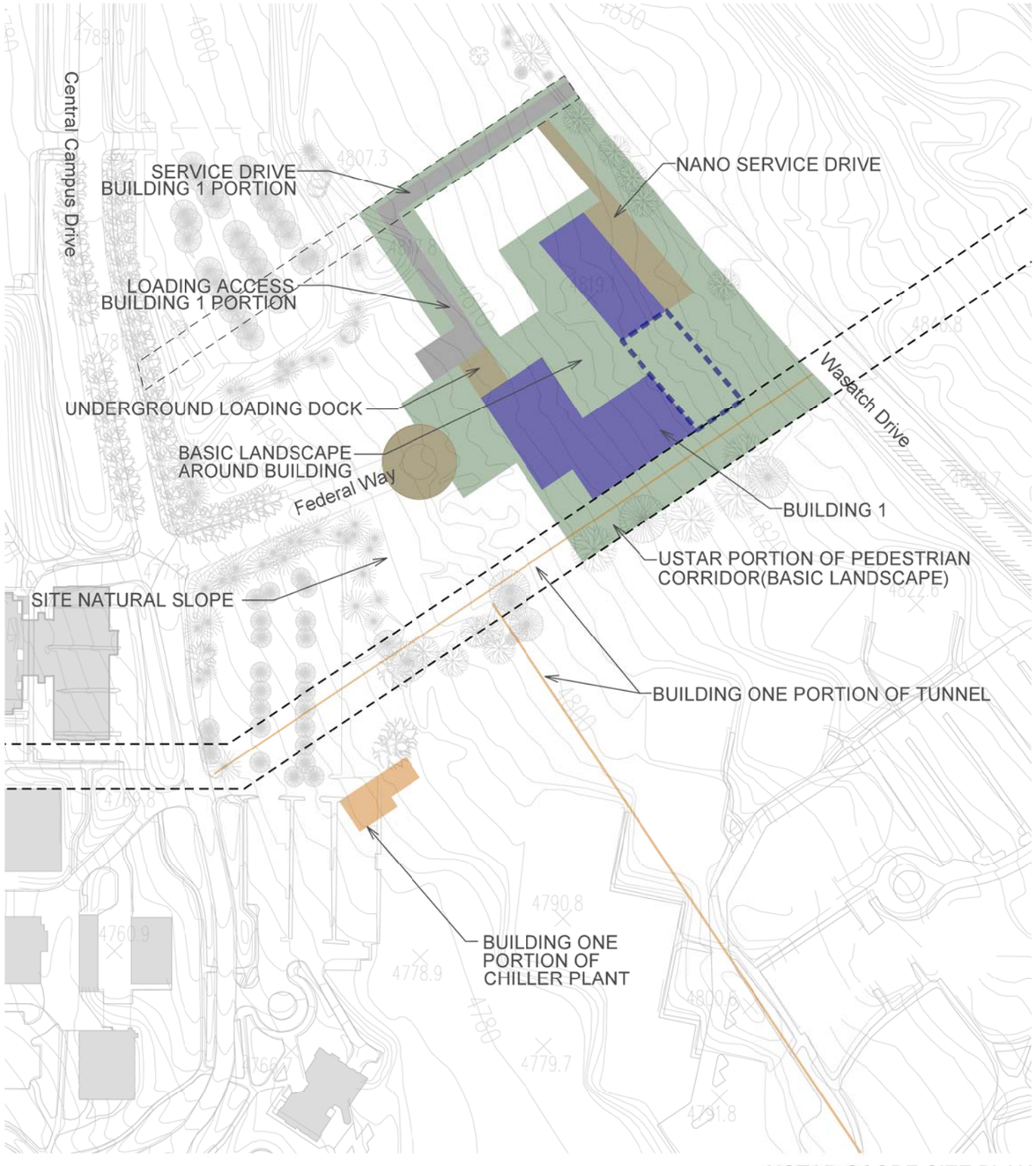
1. Site Development, Central Plant and Utility Capacity – there is a cost for the construction of the backbone for development such as a new roads, paths, central plant, tunnels and utility line distribution of water, chilled water, high temperature water, power and telecom.
2. Connections and extensions – there is a cost for establishing the new service to specific buildings, such as the costs of connections or extensions or other upstream costs of upgrades to systems such as power service from the public utility.
3. Development cost – these are short-run costs of creating the service such as load testing, design fees and other associated start up costs.

Under the marginal-cost allocation method, the goal is to confirm the infrastructure and facilities for the NBTRB differentiating the additional cost of the development for future use.
The basic formulas used in the allocation analysis are as follows:

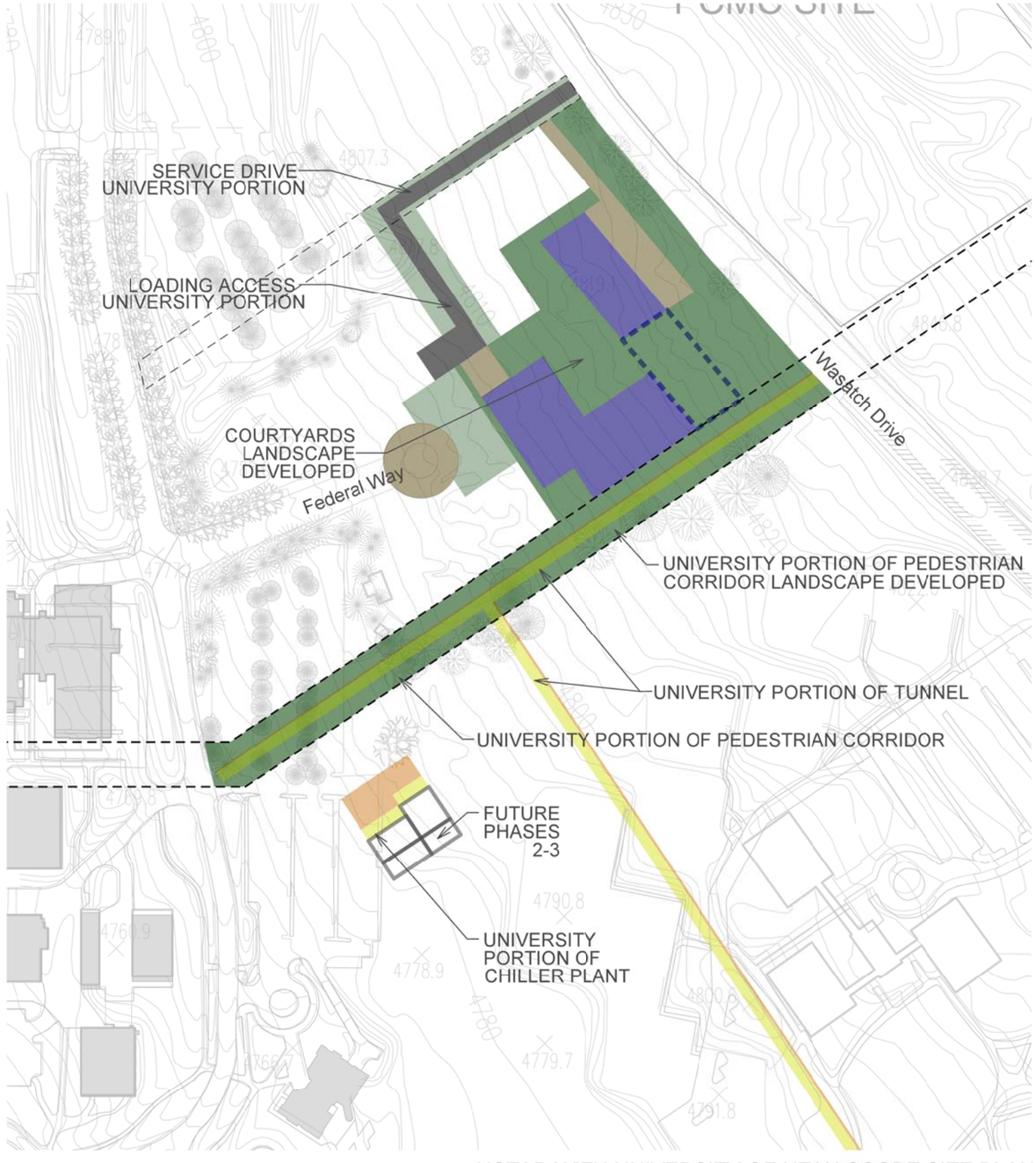
1. 100% capacity basis – There are certain components that are entirely attributable to a specific development entity which the NBTRB requires the modification to function and is the sole beneficiary of the capacity.
2. 20% capacity basis – There are certain components that are partially attributable to a specific development entity, initiated because of the NBTRB on the Interdisciplinary Quadrangle, but where USTAR is only a prorated beneficiary of the capacity related to the Quadrangle. The Quadrangle will be an eventual build-out of 1,000,000 s.f. The NBTRB is 200,000 s.f.; therefore, 20% of common Quad development is the responsibility of USTAR.
3. 15% capacity basis – There are other components that are partially attributable to a specific development entity, initiated because of the USTAR building on the Interdisciplinary Quadrangle, but where USTAR is only a prorated beneficiary of the capacity related to the capacity related to the Campus. The Utility Master Plan contemplates approximately 1,300,000 s.f. of space that will be supported by the Utility Master Plan facilities. The NBTRB is 200,000 s.f.; therefore, 15% of common Quad development is the responsibility of USTAR.
4. Specific quantity or cost basis – There are certain components that are clearly differentiable and attributable to a specific development entity, initiated because of the NBTRB on the Interdisciplinary Quadrangle, but where USTAR is only a beneficiary of the component related to the Quadrangle or the Campus.
5. Proportional quantity allocation basis – There are certain components that are proportionally attributable to a specific development entity, initiated because of the NBTRB on the Interdisciplinary Quadrangle, but where USTAR is only a prorated beneficiary of the component related to the Quadrangle or the Campus.

To the extent the master plan has been developed, the following is a general description of the infrastructure components and the logic for the distribution of the cost.

Introduction



USTAR SCOPE SITE PLAN



USTAR WITH UNIVERSITY OF UTAH SCOPE SITE PLAN

THE UNIVERSITY OF UTAH

NEUROSCIENCE & BIOMEDICAL TECHNOLOGY RESEARCH BUILDING

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April 23, 2008

Pedestrian Corridor – The Quadrangle Master Plan establishes a landscaped Pedestrian Corridor to connect the University Main Campus and the Health Sciences Campus.

USTAR Building requires an entrance off Wasatch and connects to the new entrance to the NBTRB. The 430 l.f. corridor with basic landscaping associated with the building is allocated to the USTAR budget.

Interdisciplinary Quadrangle requires an extension of the USTAR portion of the corridor to Central Campus Drive. The 570 l.f. extended corridor with basic landscaping associated with the future Quadrangle, including the cost of the basic landscaping, is allocated to the University.

The University has requested that the landscaping be upgraded to a standard for the entire Interdisciplinary Quad. This incremental increase in the corridor is allocated to the University.

Other Campus connections are not required at this time.

USTAR Building Site Landscaping – The Quadrangle Master Plan establishes the development of Landscaping concept for the overall Quadrangle. However, only the area disturbed by the USTAR building development is contemplated at this time.

USTAR Building requires a circumscribed limit for the development of the NBTRB. As a result, the 78,000 s.f. of the NBTRB site including basic landscaping is allocated to the USTAR budget.

The University has requested that the landscaping be upgraded to a standard for the entire Interdisciplinary Quadrangle. As a result, the 78,000 s.f. of the NBTRB site with enhanced landscaping is allocated to the University budget.

Interdisciplinary Quadrangle requires an extension of the landscaping but none is required at this time. No cost is allocated to USTAR or the University budget.

Other Campus landscaping is not required at this time.

Service Road and Loading Dock Access – The Quadrangle Master Plan establishes a New Service Road to connect the University Main Campus and the Health Sciences Campus.

The Interdisciplinary Quadrangle requires an entrance off Wasatch and connects to the new loading dock to the Phase I building. Since the service road and loading dock access serves the entire Interdisciplinary Quadrangle, 20% of the service road associated with the building is allocated to the USTAR budget.

In addition, the Interdisciplinary Quadrangle requires an extension of the service road to Central Campus Drive. However, this extension will not be constructed as part of NBTRB. Therefore, no cost of the extension is allocated to the University budget.

Other Campus connections are not required at this time.

Loading Dock – The Quadrangle Master Plan establishes the development of a loading dock to serve the overall Quadrangle. This loading dock is required for the NBTRB.

The NBTRB requires a loading dock. The total cost of the loading dock is allocated to the USTAR budget.

Future buildings in the Interdisciplinary Quadrangle require individual loading docks that will be constructed with the new buildings. Therefore, there is no cost for added loading dock allocated to the University budget.

Chilled Water Plant Equipment – The Quadrangle Master Plan establishes the development of a Central Chilled Water Plant for the overall Quadrangle as well as facilities on the University Main Campus and the Health Sciences Campus. NBTRB calls for 900 tons capacity. However, the initial outfitting calls for two reasonable sized chillers of 1,500 ton each. Additional chillers can be added over time to serve the long term goals. Also, the cooling towers, associated pumps, panels, controls and electrical switchgear will be required for the NBTRB.

The NBTRB Building requires a chiller of 900 tons (30%). The cost of one chiller along with the supporting the cooling towers, associated pumps, panels, controls and electrical switchgear is allocated to the USTAR budget since it is required as part of the building.

The additional phase one chiller capacity of 2100 tons (70%) including cooling towers, associated pumps, panels, controls and electrical switchgear is allocated to the University budget.

The Interdisciplinary Quad and the future of the University require an additional 7000 tons of chiller capacity in the future. No cost is anticipated at this time.

Chilled Water Plant Building – The University Master Plan including the Quad Master Plan requires the development of a Central Chilled Water Plant for the overall Quad as well as additional facilities required to support the University campus in the future. The Plant will be sized in the initial construction to house equipment to provide 3000 tons. The NBTRB, however, will only require 900 tons which would be required even if it were a part of the main building. To house all the initial 3000 ton equipment components, an 8,200 s.f building, 5150 s.f. for the building and 3050 s.f. for the cooling tower enclosure for Phase I is required. In addition, it has been suggested that the entire Central Plant of an additional 9160 s.f. be constructed. The expansion will be without the major equipment but would be constructed in a way to allow equipment to be added as demand increases. The total capacity of the plant when completed will be 10,000 tons.

The NBTRB requires a chilled water plant building that will house the first two chillers and the cooling towers, associated pumps, panels, controls and electrical switchgear. As described above, the NBTRB will require 900 tons, 30% of the 8,200 s.f. building. However, two 1,500 ton chillers will be provided. Therefore 30% of the 8,200 s.f. building is required for NBTRB which is 2,460 s.f. This amount is allocated to the USTAR budget.

The Interdisciplinary Quadrangle and the future of the University buildings to be served from this location will supply 1500 tons, 70% of the capacity thus 70% of cost of the 8.200 s.f. building is allocated to the University budget.

It has been suggested that the entire Central Plant Building with only the basic infrastructure of an additional 9,160 s.f.. Cost of the additional 9,160 s.f of building is identified as an optional University budget item.

Landscape, Loading and Chilled Water Plant

Site Plan

Chilled Water Distribution – The Quadrangle Master Plan establishes the development of a Central Chilled Water Distribution System for the overall Quadrangle as well as facilities on the University campus. NBTRB calls for two 10” diameter distribution lines, one supply and one return, to the NBTRB. However, for the capacity for future distribution, two 24” diameter distribution lines, one supply and one return, are being installed to serve the long term goals.

The NBTRB requires service from the Chilled Water Plant Building of two 10” diameter distribution lines, one supply and one return. The equivalent cost of the two 10” diameter distribution lines is allocated to the USTAR budget since it is required as part of the building.

The actual installation from the Central Plant through the Pedestrian Corridor Utility Tunnel to a branch off to the NBTRB is two 24” diameter distribution lines. The difference between the two 10” diameter distribution lines and the two 24” diameter distribution lines is allocated to the University budget.

The Interdisciplinary Quadrangle and the future of the University will require additional distribution capability but that will be an addition in the future. No cost is anticipated at this time.

Site Plan – Chilled Water

High Temperature Water Distribution – The Quadrangle Master Plan establishes the development of a High Temperature Water Distribution System for the overall Quadrangle as well as facilities on the University campus. Phase I calls for two 10” diameter distribution lines, one supply and one return, to the Pedestrian Corridor Utility Tunnel. From that Tunnel, two 6” lines will be required to serve the NBTRB. Capacity for future distribution will be deliver in two 10” diameter distribution lines, one supply and one return, to serve the long term goals.

The NBTRB requires high temperature water service from a connection to Zone Z-4 near Hyper Mall to the building. The cost of two 6” diameter distribution lines from that location is allocated to the USTAR budget since it is required as part of the building.

The actual High Temperature Water lines will be 10” diameter. The difference in the cost of the two 6” lines and the two 10” diameter lines from a connection to Zone Z-4 near Hyper Mall to the building is allocated to the University budget.

Also, there is a 2” branch line off the main line to provide the heating needs of the Central Plant. This line is sized for the entire Central Chiller Plant building. The cost of this line is allocated 30% to USTAR budget and 70% to the University budget.

The Interdisciplinary Quadrangle and the future of the University will require additional distribution capability but that will be an addition in the future. No cost is anticipated at this time.

Site Plan – New High Temperature Water

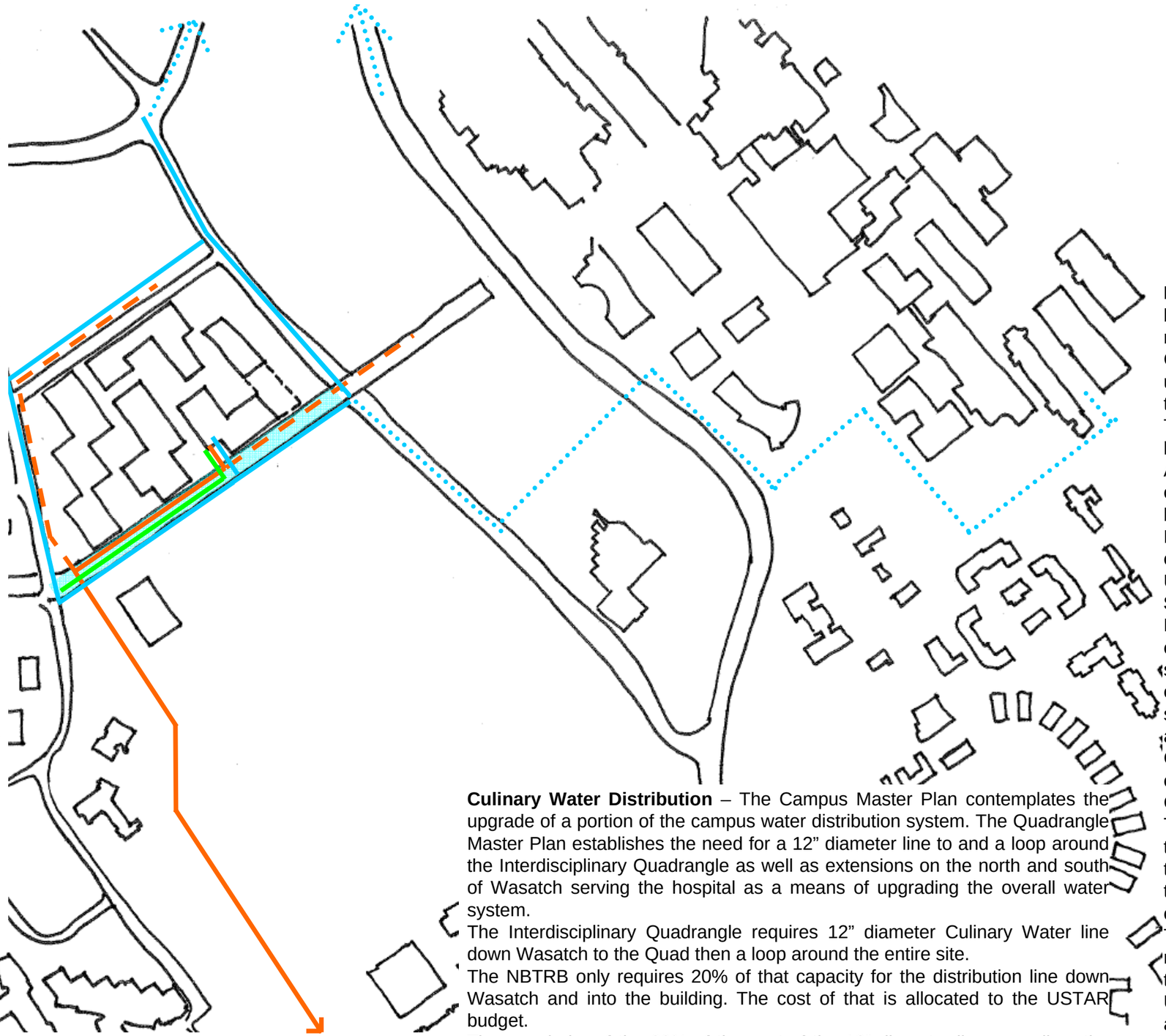
Sanitary Sewer Collection – The Quadrangle Master Plan establishes the development of a new 12” diameter Sanitary Sewer serving the overall Quadrangle. NBTRB calls for a 12” diameter trunk line along the west side of the site going to 500 South Guardsman Way. There will be a connection from the NBTRB to this outfall line. There is also a new 12” diameter collection line to be connected to a location near the new Ambulatory Care Building that is to be installed as part of a future project.

The NBTRB requires a 12” diameter Sanitary Sewer trunk line. This line is estimated to be a 700 foot connection to the outfall on the west side of the site. The cost of this pipe is allocated to the USTAR budget.

The Sanitary Sewer trunk line to Guardsman Way is required to serve the Interdisciplinary Quadrangle and other campus buildings. The NBTRB will utilize only 15 % of the collection line capacity so 15% of the cost is allocated to the USTAR budget.

The remaining 85% of the cost of the Sanitary Sewer trunk line to Guardsman Way is allocated to the University budget.

The Interdisciplinary Quadrangle and will require additional extensions to the trunk line but will be an addition in the future. No cost beyond the difference described above is anticipated at this time.



Natural Gas Distribution – The USTAR building will be served by a connection to the main gas line running north-south adjacent to Campus Drive. The USTAR building will utilize only 1/10th of 1 % of the capacity of this line.

The cost of the 2” extension to the main gas line is allocated to the USTAR budget.

An impact fee of 1/10th of 1 % of the capacity of this line is so minimal so no allocation has been made.

No additional work on the gas line is expected so no cost is allocated to the University budget.

Storm Sewer Collection – The Quadrangle Master Plan establishes an overall plan that envisions a catch basins and other collection system beginning at the NBTRB site and extending to a detention tank on the west side of the site (used for landscape watering) and into the bioswale in the Pedestrian Corridor. In the future that water will be extended to a bioswale along Central Campus Drive.

The NBTRB will be piped internal to the site to a Storm Water detention tank. The cost of the distribution and the tank is allocated to the USTAR budget since it is required as part of the building.

There is no extension or upsize for the remainder of the Interdisciplinary Quadrangle therefore, there is no cost allocated to the University budget. The cost of the bioswale is already accounted for in the Pedestrian Corridor.

The Interdisciplinary Quadrangle and the future of the University will require additional capacity but the extensions will be an addition in the future. No cost is anticipated at this time.

Culinary Water Distribution – The Campus Master Plan contemplates the upgrade of a portion of the campus water distribution system. The Quadrangle Master Plan establishes the need for a 12” diameter line to and a loop around the Interdisciplinary Quadrangle as well as extensions on the north and south of Wasatch serving the hospital as a means of upgrading the overall water system.

The Interdisciplinary Quadrangle requires 12” diameter Culinary Water line down Wasatch to the Quad then a loop around the entire site.

The NBTRB only requires 20% of that capacity for the distribution line down Wasatch and into the building. The cost of that is allocated to the USTAR budget.

The remainder of the 80% of the cost of the 12” diameter line as well as the cost of the loop around the Quadrangle is allocated to the University budget.

The Campus Master Plan contemplates the upgrade of the overall water distribution system. Since this is really replacement of existing distribution, enhancement or extension for other parts of the campus, all remaining costs are allocated to the University budget.

Site Plan – New Piping

New Power

Future Power

Power Sub-Station Upgrade – The Quadrangle Master Plan and the expansion of the University Main Campus and the Health Sciences Campus will eventually require the addition of a 22 MVA transformer by Rocky Mountain Power at the Red Butte Sub Station as well as expansion of the breaker switchgear. The University has decided not to request this installation at this time but the funding of this addition needs a contribution for the later impact of the cost NBTRB requires 4.4 MVA of the 22 MVA (20%) of that new capacity. Also, in the current phase, there is a requirement to add one bay to the substation breaker to accommodate the USTAR Building. It has been recommended that it is prudent to add two bays.

Since the NBTRB will increase the capacity needs of the transformer, a new transformer will eventually be required. A marginal cost allocation impact fee of 20% of this transformer is allocated to the USTAR budget.

The University will eventually request the addition of the new transformer. When this is done, the entire cost will be allocated to the University but the University will apply the impact fee contribution at that time.

The USTAR Building requires one additional bay in the substation breaker switchgear. The cost of the additional breaker is allocated to the USTAR budget since it is required for the building.

The Interdisciplinary Quadrangle and the future of the University will require additional capacity. Initially, it is prudent to add an additional bay in the breaker. The cost of the added breaker is allocated to the University budget.

Cost allocation of additional upgrades will be determined at the time of the upgrade.

Power Distribution – The Quadrangle Master Plan requires a new electrical power feed from the Red Butte Substation. NBTRB calls for one new distribution line for the USTAR building. This distribution line is to be installed as part of the project. However, to allow for added capacity for future distribution, a new duct bank from Hyper Mall to the Pedestrian Corridor will be installed as part of the project to serve the long term goals of the University.

The USTAR Building requires a new distribution feeder. The cost of the new distribution line including 15% of the duct bank is allocated to the USTAR budget since it is required as part of the building.

The remaining 85% of the cost of the duct bank is allocated to the University budget.

The Interdisciplinary Quadrangle will require additional capacity but the additional feeders are not required at this time and will be an addition in the future. No cost is allocated to the University budget.

Site Plan – New Power

New Telecom

Future Telecom

Optional Route

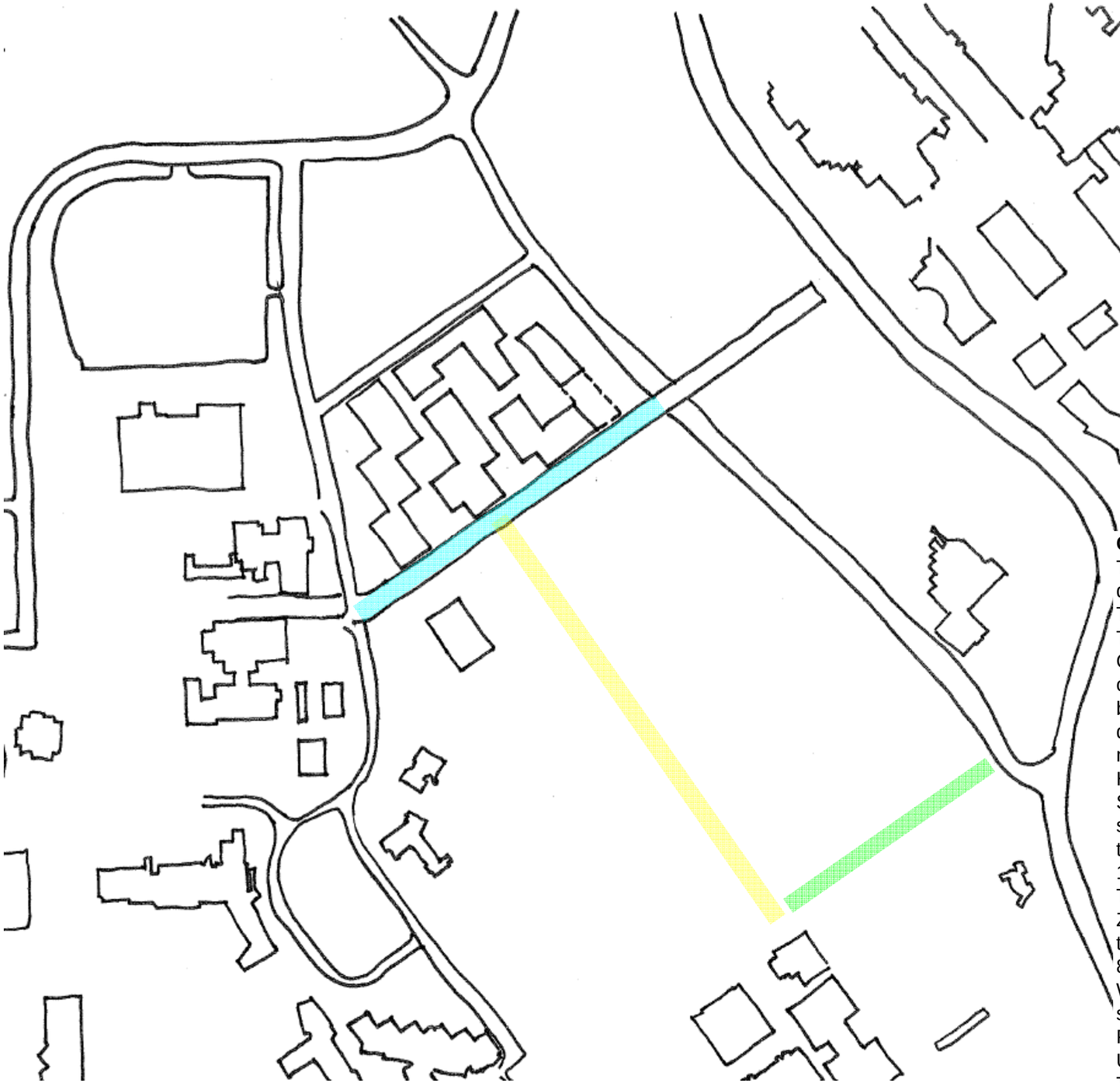
Telecom Distribution – An existing Telecom distribution point is located near the intersection of Wasatch and the Pedestrian Corridor but the prudent plan is to provide a safe installation and prepare for the future by extending a Telecom distribution at Hyper Mall through a new tunnel that will intersect with the new High Temperature Water Tunnel running from Hyper Mall to the Pedestrian Corridor. This distribution will serve the Interdisciplinary Quadrangle as well as the other parts of the campus.

The NBTRB requires a new Telecom distribution. The equivalent cost of the Telecom distribution line from the existing tie in at Wasatch and the Pedestrian Corridor is allocated to the USTAR budget.

The additional cost the Telecom distribution is only required if the University determines it is prudent to reroute the telecom through a new tunnel system. If the rerouting is implemented the difference in the cost is allocated to the University budget.

The Interdisciplinary Quadrangle and will require additional capacity but the extensions will be an addition in the future. No cost is allocated to the University budget.

Site Plan – New Telecom



Pedestrian Corridor Tunnel

High Temp Water Tunnel

Hyper Mall Tunnel (optional)

Campus High Temperature Water Tunnel – The Quad Master Plan establishes the development of a High Temperature Water Tunnel Distribution System for Hot Temperature Water for the overall Quadrangle but will also serve future facilities on the University campus. The tunnel must be installed as part of NBTRB since the distribution of high temperature water, no matter the size have to be routed through the High Temperature Water Tunnel Distribution System. The entire tunnel must be installed so utilities can be added over time to serve the long term goals.

15% of the cost of the High Temperature Tunnel from the south at Hyper Corridor Zone Z4 to the Pedestrian Corridor is allocated to the USTAR budget.

85% of the cost of the High Temperature Water Tunnel Distribution System from the south at Hyper Corridor Zone Z4 to the Pedestrian Corridor is allocated to the University budget.

The Interdisciplinary Quadrangle and the future of the University require additional tunnel but that will be an addition in the future. No cost is anticipated at this time.

Pedestrian Corridor Utility Tunnel – The Quadrangle Master Plan establishes the development of a Utility Tunnel Distribution System under the Pedestrian Corridor, connecting the two sides of campus for distribution. One of those tunnels is for distribution of utilities from the Central Plant to the Interdisciplinary Quadrangle and the ability to extend to other parts of campus. A portion of this tunnel must be installed as part of NBTRB since the distribution of utilities, no matter the size have to be routed through the Pedestrian Corridor Utility Tunnel Distribution System. Utilities in the Pedestrian Corridor Utility Tunnel do not run the entire length in the NBTRB site. However, the entire tunnel must be installed so utilities can be added over time to serve the long term goals.

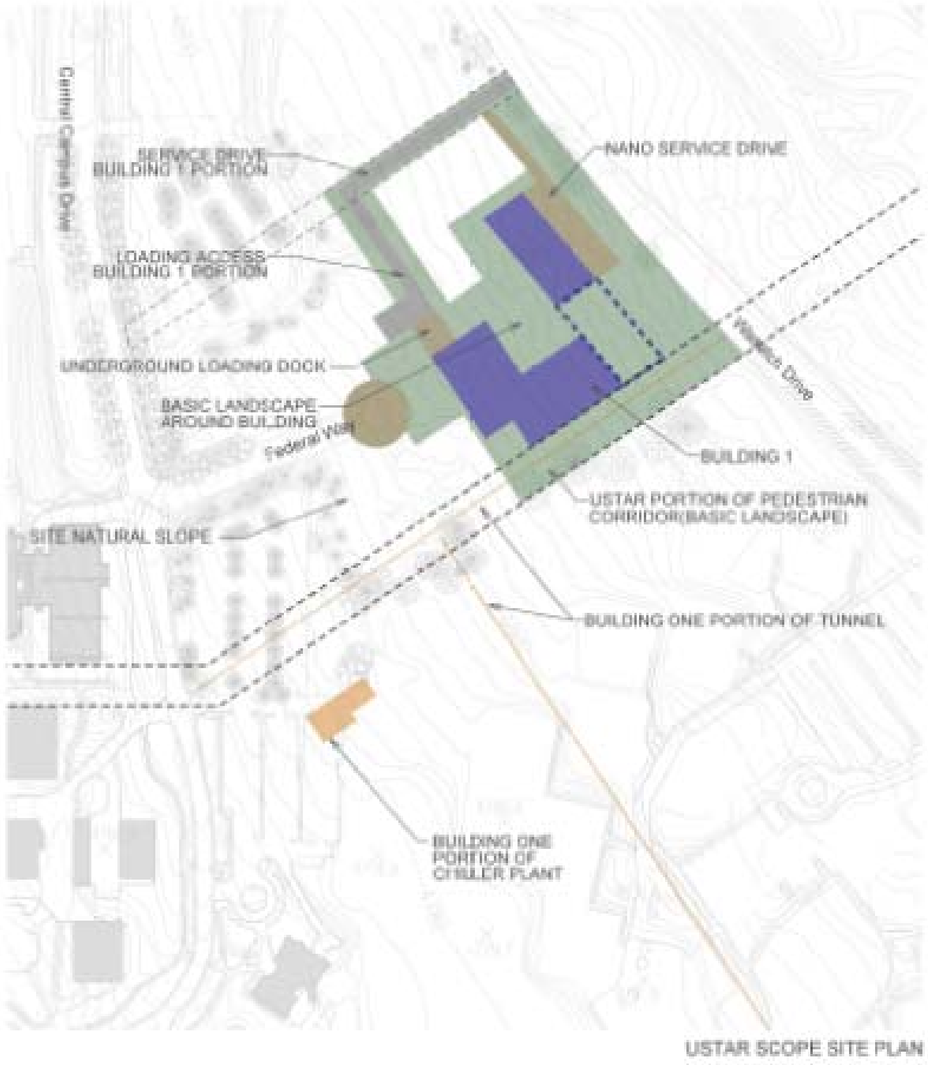
A tunnel is to be provided under the pedestrian corridor between Central Campus Drive and Wasatch Drive for distribution of services to all future buildings. The cost of 15% of that tunnel has been allocated to the USTAR budget.

The remaining cost of 85% of that tunnel is allocated to the University budget.

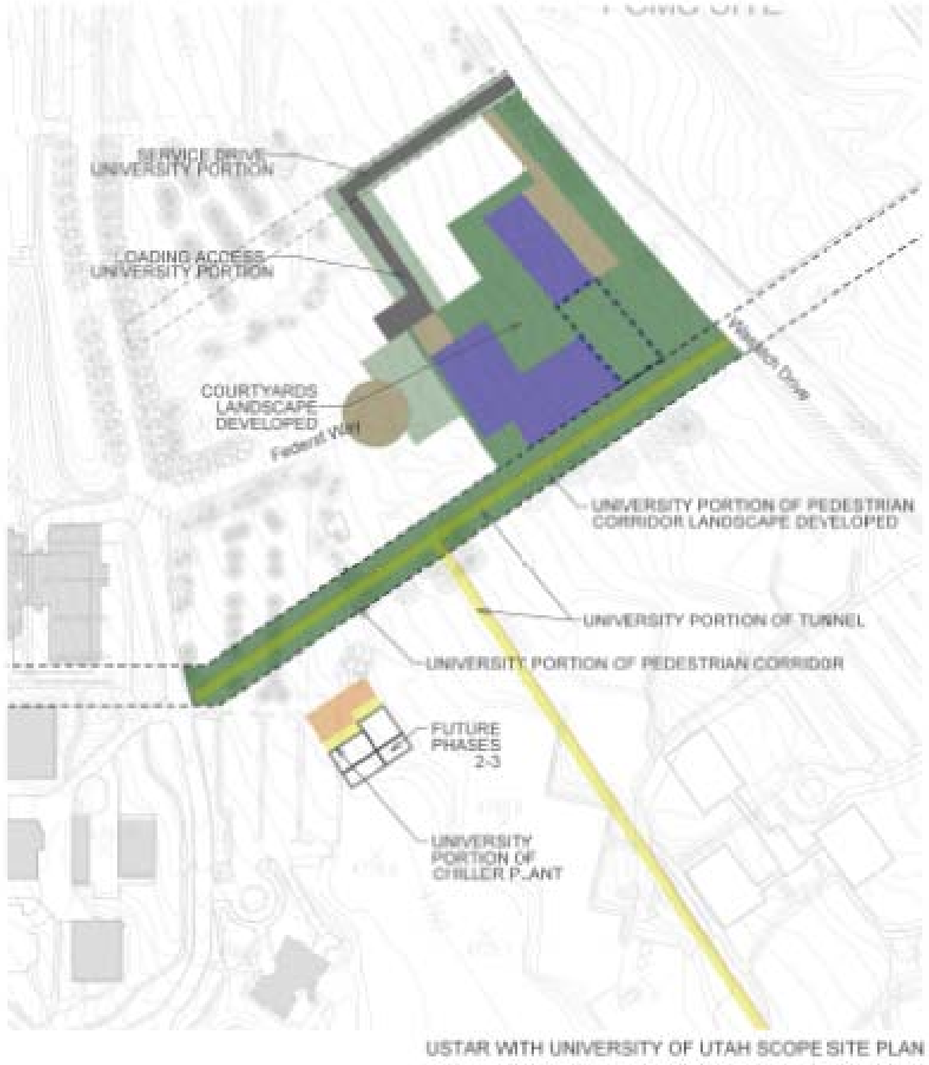
The Interdisciplinary Quadrangle and the future of the University require additional tunnel but that will be an addition in the future. No cost is anticipated at this time.

Site Plan – New Tunnels

Site Plan – Combined New Utilities



USTAR SCOPE SITE PLAN



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Utility Relocation from Federal Way –Due to the location of the new Interdisciplinary Quadrangle, the utilities currently located in Federal Way must be relocated. This includes Electrical, Water and Telecom. Only half of these lines need to be relocated for the NBTRB but it has been determined that it is prudent to complete all the relocation in the initial construction. These utilities serve the current facilities on the University campus.

The NBTRB site requires half these existing utilities to be relocated so 50% of the cost is allocated to the USTAR budget.

To accommodate the future Buildout, 50% of the cost of the utility relocation is allocated to the University budget.

Phase I Temporary Drop Off –The site for the NBTRB will be developed under the construction budget. However, the turnaround at the end of the shortened Federal Way will be required in the initial scope.

The turnaround is allocated to the USTAR budget since it is required as part of the building.

No cost is allocated to the University budget..

Summary of Costs –

The costs for each of these has been budgeted with comparable construction cost and associated project costs. The funding of these costs by USTAR is to be available exclusively for responding to the NBTRB. Based on the rationale set forth above, it is believed that a fair and equitable distribution of cost is indicated on the attached summary sheets.

USTAR and University of Utah Capital Cost Allocation Plan

USTAR and University of Utah

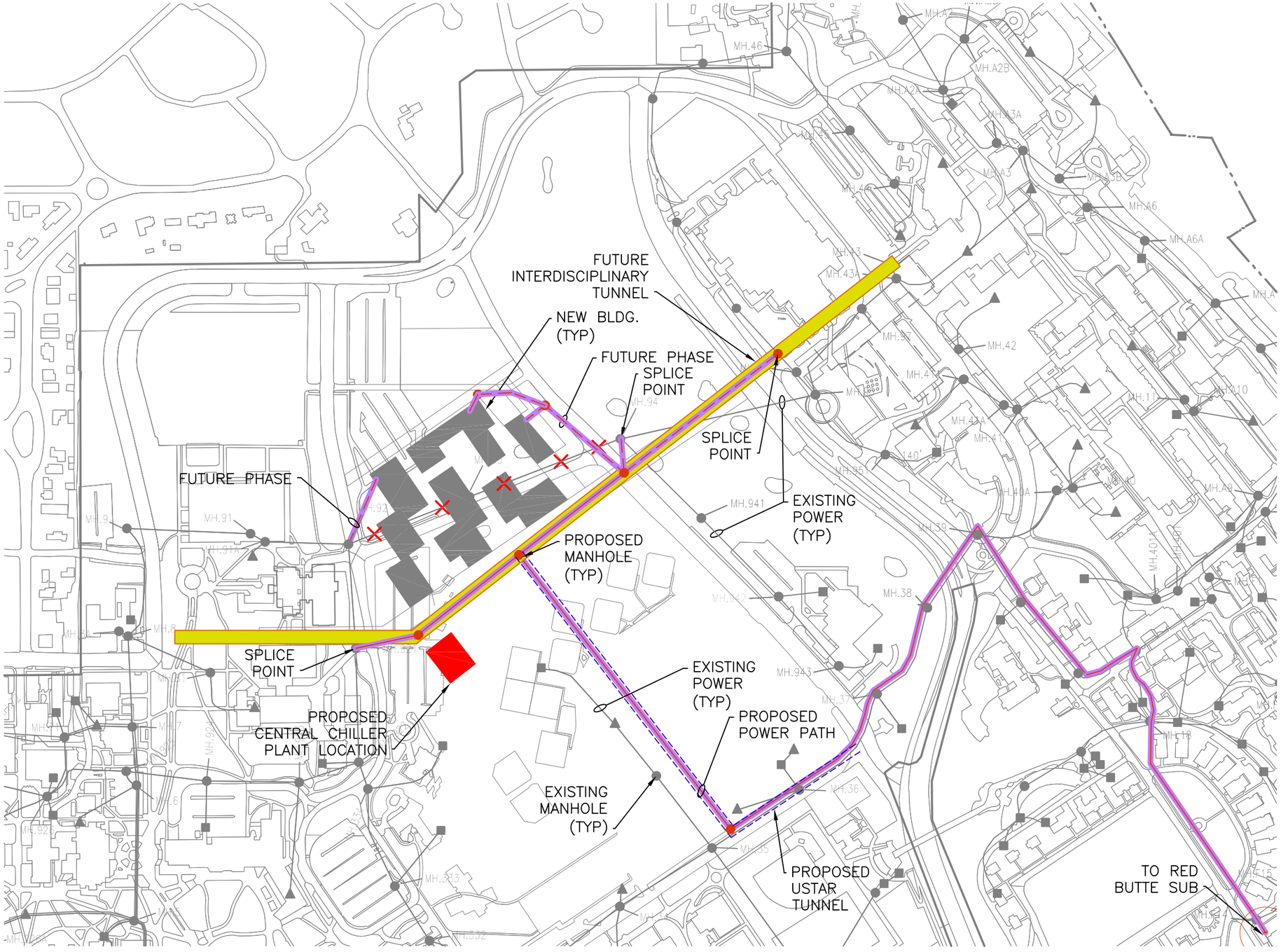
Capital Cost Distribution Plan

	USTAR					University of Utah					Required
Item	**Reference**	**Qty**	**U/M**	**U/C**	**Subtotal**	**Construction Estimate**	**Reference**	**Qty**	**U/M**	**U/C**	**Subtotal**	**Construction Estimate**
Pedestrian Corridor - Wasatch Drive to Central Campus (1000 feet)						**288,266**						**950,470**
	portion of corridor with basic landscaping associated with the building	430	lf	670.39	288,266		extension of corridor to Central Campus Drive	570	lf	1,238.74	706,080	
							landscape soft and hardscape	1,000	lf	244.39	244,391	
Courtyard Landscape						**103,878**						**749,580**
	basic landscaping	78,000	sf	1.33	103,878		landscape enhancements	78,000	sf	9.61	749,580	
Service Road						**82,651**						**330,605**
	Service Road	70	lf	650.73	45,551		Service Road	280	lf	650.73	182,205	
	Loading dock acess	700	sf	53.00	37,100		Loading dock access	2,800	sf	53.00	148,400	
							Road connecting Central Campus Drive to the loading dock entrance					
Loading Dock						**324,400**						**2,039,600**
	loading dock	2,400	sf	135.17	324,400		Loading dock - turnaround and access road portion	9,600	sf	212.46	2,039,600	
Chilled Water Plant Equipment (3000 tons)						**1,254,960**						**2,928,240**
	900 ton capacity	900	tons	1,394.40	1,254,960		3000 ton capacity total (2 1500 ton chillers), University pay for 3000 ton minus USTAR portion	2,100	tons	1,394.40	2,928,240	
Chilled Water Plant Building Phase 1 (8200SF)						**738,402**						**646,252**
	USTAR portion of plant	2,460	sf	300.16	738,402		University portion	2,153	sf	300.16	646,252	
							Future expansion	9,160	sf	-	-	
High Temperature Water						**589,350**						**377,650**
	6" line entire length	1,700	lf	326.91	555,750		expand to 10" line for future	1,700	lf	176.03	299,250	
	2" HTW direct buried to Chilled Water Plant - 30% of cost	200	lf	168.00	33,600		2" HTW direct buried to Chilled Water Plant - 70% of cost	200	lf	392.00	78,400	
Chilled Water						**225,000**						**331,500**
	10" lines from chiller plant to USTAR building	900	lf	250.00	225,000		upgrade to 24" lines from chiller plant to USTAR building	900	lf	368.33	331,500	
Sanitary Sewer						**229,740**						**635,460**
	capacity associated with USTAR building	4,450	lf	25.20	112,140		Capacity Associated with future build out	4,450	lf	142.80	635,460	
	12" Sanitary to USTAR	700	lf	168.00	117,600							
Natural Gas						**46,250**						**-**
	new line to USTAR	800	lf	57.81	46,250		not required	-		-	-	
Storm Sewer						**50,000**						**-**
	on site collection	1	ls	50,000	50,000		not required	-		-	-	
Culinary Water						**61,842**						**706,415**
	new 12" line from city connection point to USTAR with loop	746	lf	82.88	61,842		new 12" line from city connection point to USTAR with Loop	2,985	lf	82.88	247,367	
							Remaining portion of new hospital loop as desired	5,539	lot	82.88	459,048	
Power						**2,589,425**						**2,249,575**

USTAR and University of Utah

Capital Cost Distribution Plan

	USTAR						University of Utah					Required
Item	**Reference**	**Qty**	**U/M**	**U/C**	**Subtotal**	**Construction Estimate**	**Reference**	**Qty**	**U/M**	**U/C**	**Subtotal**	**Construction Estimate**
	Site Feeders	5,640	lf	364	2,052,400			1,410	lf	364	513,100	
	Additional bay and swithcgear	1	ls	150,000	150,000			1	ls	150,000	150,000	
	Expand Red Butte Substation	1	ls	284,531	284,531			1	ls	1,138,125	1,138,125	
	Red Butte Substation	1	ls	79,469	79,469			1	ls	317,875	317,875	
	Surface Restoration for Electrical Work	1	ls	23,025	23,025			1	ls	130,475	130,475	
Telecom						**50,000**						
	telecom routing from Wasatch to USTAR	1	ls	50,000	50,000		Optional alternate routing from hyper mall in tunnel	0	ls	0.00	0	
Tunnel 1 (Pedestrian Corridor) - (total 1,000 lf)						**202,500**						**1,147,500**
	Portion of work by USTAR	150	lf	1,350	202,500		Portion assigned to University	850	lf	1,350	1,147,500	
Tunnel 2 - HTW line route - Northwest to Pedestrian Corridor starting at zone Z4 - (total 1,350 lf)						**202,500**						**1,147,500**
		203	lf	1,000	202,500			1,148	lf	1,000	1,147,500	
Tunnel 3 (Optional Telecom Route and Future) - (total 750 lf)						-						
		-	lf	-	-		Tunnel at Southeast	750	lf	-	-	
Utility Relocation from Federal Way						**380,760**						**1,523,040**
	Electrical Feeder Relocation	1	ls	168,000	168,000		Electrical Feeder Relocation	1	ls	672,000	672,000	
	Site Telecommunications Relocations	1	ls	65,100	65,100		Site Telecommunications Relocations	1	ls	260,400	260,400	
	Site Telecommunications Raceways	1	ls	68,760	68,760		Site Telecommunications Raceways	1	ls	275,040	275,040	
	Relocated Water Piping from Federal way	1	ls	78,900	78,900		Relocated Water Piping from Federal way	1	ls	315,600	315,600	
Miscellaneous Site Development						**187,533**						**-**
	Miscellaneous site demolition and Site Prep	1	ls	80,000	80,000							
	Temp Road / Temp Parking west of USTAR Site	1	ls	107,533	107,533							
Cost of the Work	**cost / component**				7,607,458	7,607,458	**cost / component**				15,763,387	15,763,387
	General Requirements			7.00%	7,607,458	532,522	General Requirements			7.00%	15,763,387	1,103,437
	Bidding & Contract Requirements			1.00%	8,139,980	81,400	Bidding & Contract Requirements			1.00%	16,866,824	168,668
	Precon Services			0.10%	8,221,380	8,221	Precon Services			0.10%	17,035,493	17,035
	Contractor's Fee			4.00%	8,221,380	328,855	Contractor's Fee			4.00%	17,035,493	681,420
	Inflation to Bid Day	0	MOS	0.00%	8,558,456	0	Inflation to Bid Day	0	MOS	0.00%	17,733,948	0
	Construction Contingency			3.00%	8,550,235	256,507	Construction Contingency			3.00%	17,716,912	531,507
	Estimating Contingency			5.00%	8,806,742	440,337	Estimating Contingency			5.00%	18,248,420	912,421
Cost of Construction						**9,255,301**						**19,177,876**



N

MASTER POWER PLAN
SCALE: 1" = 400'

400' 200' 0' 400' 800'

UNIVERSITY OF UTAH

INTERDISCIPLINARY CORRIDOR

VAN BOERUM & FRANK ASSOCIATES INC.
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Ken Garner Engineering, Inc.
ELECTRICAL CONSULTING ENGINEERS
102 West 500 South, Suite 225
Salt Lake City, Utah 84101
Telephone: 801.328.8800
Fax: 801.328.8802
Contact: Ken Garner
Project #: 57095.00

LEGEND

- EXISTING POWER
- FUTURE PHASE PROPOSED POWER
- DEMOLISH POWER
- PROPOSED TUNNEL
- PROPOSED MANHOLE
- PROPOSED CHILLER PLANT
- FUTURE BUILDING

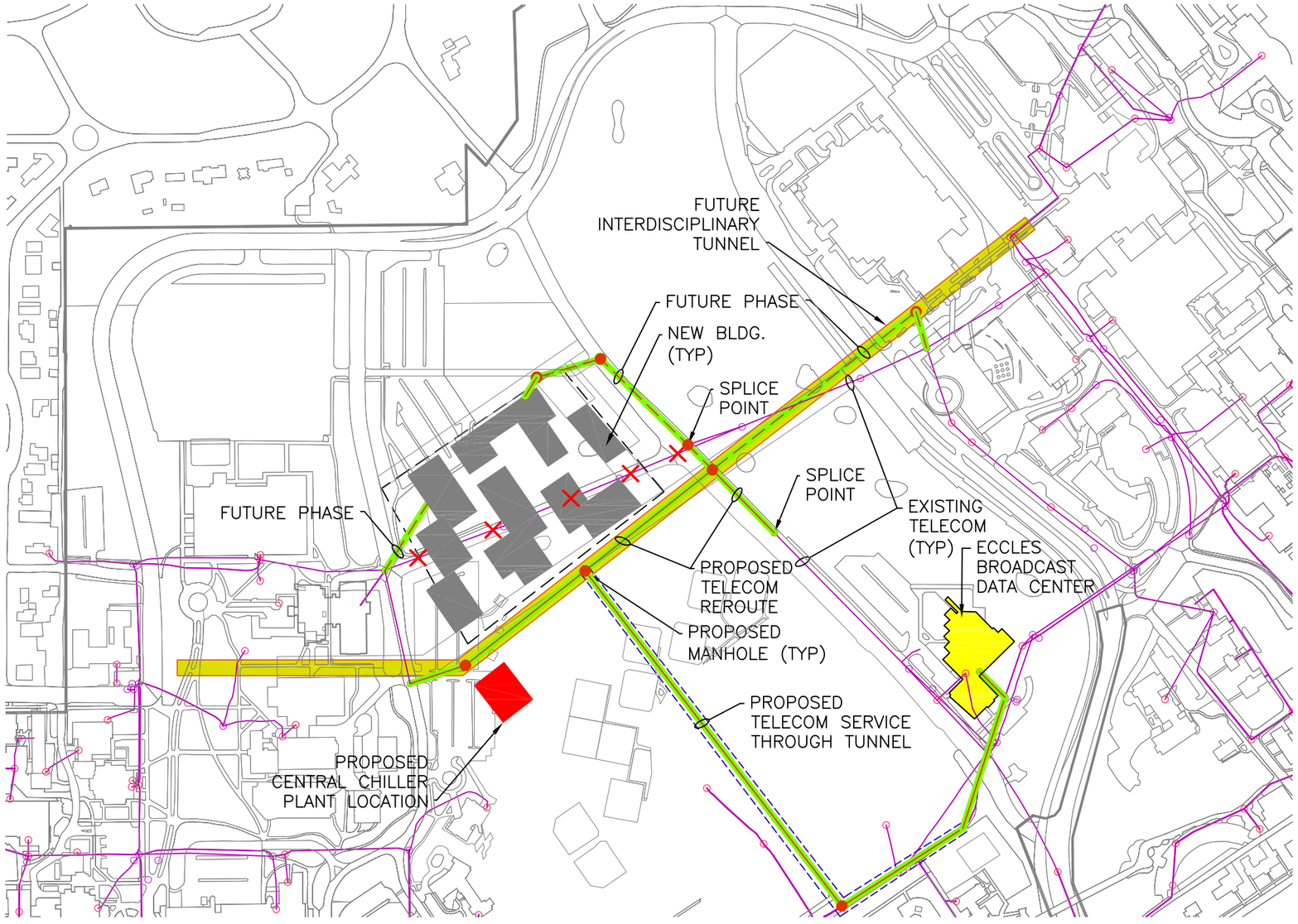
REVISIONS

CHECKED BY:	
DRAWN BY:	KGE
DATE:	4/9/08

SHEET CONTENTS

MASTER POWER PLAN

EP1



N

MASTER TELECOM PLAN

SCALE: 1" = 400'

400' 200' 0' 400' 800'

UNIVERSITY OF UTAH

INTERDISCIPLINARY CORRIDOR

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Fax: 801.328.8802
Contact: Ken Garner
Project #: 57095.00

LEGEND

- EXISTING TELECOM
- FUTURE PHASE
- PROPOSED TELECOM
- DEMOLISH TELECOM
- PROPOSED MANHOLE
- PROPOSED CHILLER PLANT
- FUTURE BUILDING

REVISIONS

CHECKED BY:

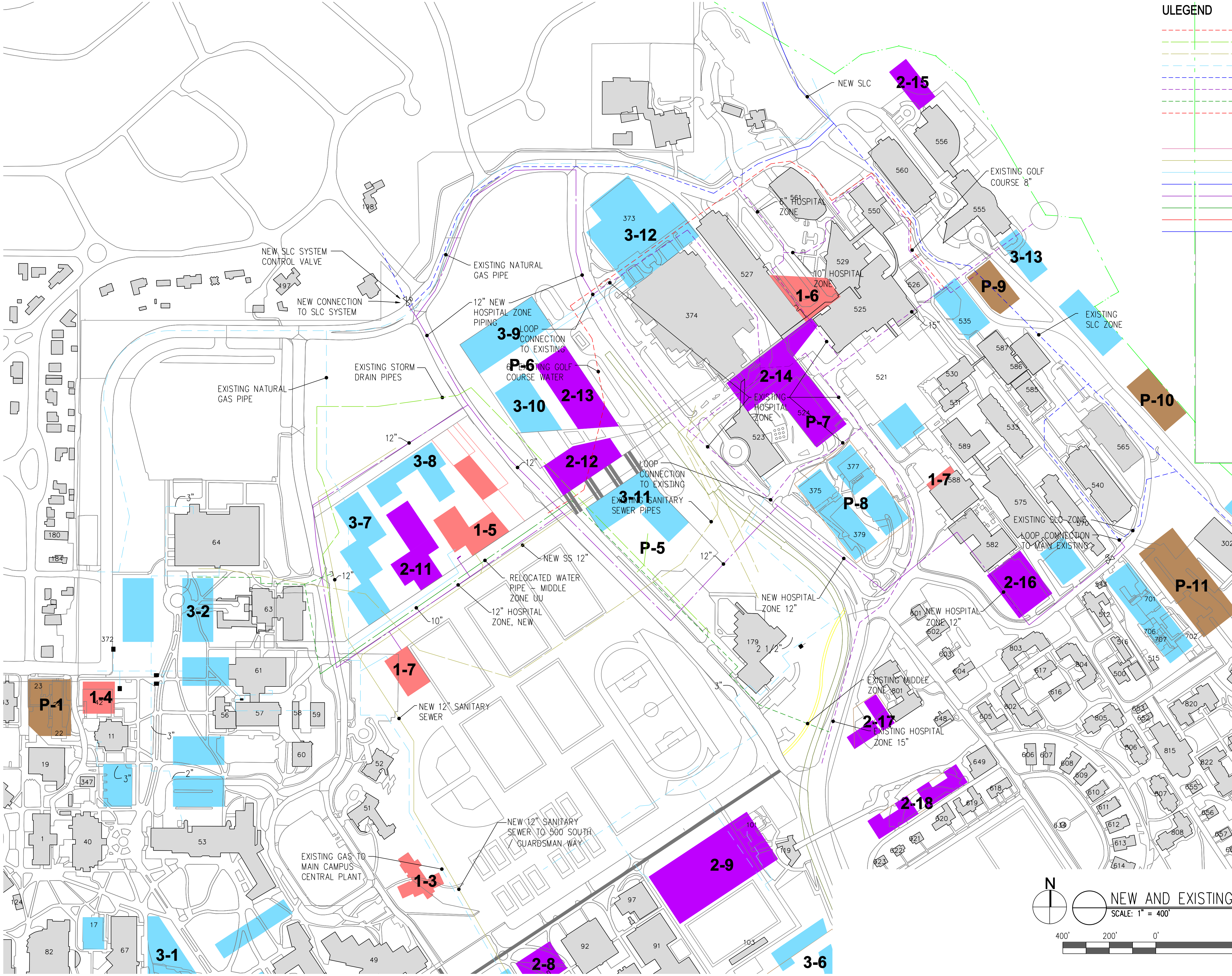
DRAWN BY: KGE

DATE: 4/9/08

SHEET CONTENTS

MASTER TELECOM PLAN

ET1


NEW SLC
2-15
556
560
EXISTING GOLF
COURSE 8"
555
550
561
6" HOSPITAL
ZONE
373
3-12
529
10" HOSPITAL
ZONE
3-13
527
1-6
526
P-9
525
374
535
EXISTING
SLC ZONE
NEW SLC SYSTEM
CONTROL VALVE
NEW CONNECTION
TO SLC SYSTEM
EXISTING NATURAL
GAS PIPE
12" NEW
HOSPITAL ZONE
PIPING
3-9
LOOP
CONNECTION
TO EXISTING
P-6
EXISTING GOLF
COURSE WATER
2-13
3-10
2-14
EXISTING
HOSPITAL
ZONE
P-7
521
587
586
585
530
531
533
589
565
P-10
EXISTING STORM
DRAIN PIPES
EXISTING NATURAL
GAS PIPE
12"
3-8
2-12
LOOP
CONNECTION
TO EXISTING
3-11
EXISTING SANITARY
SEWER PIPES
523
377
375
P-8
379
1-7
588
575
540
EXISTING SLC ZONE
LOOP CONNECTION
TO MAIN EXISTING
582
2-16
302
P-11
3-7
1-5
P-5
12"
64
NEW SS 12"
2-11
RELOCATED WATER
PIPE - MIDDLE
ZONE UU
12" HOSPITAL
ZONE, NEW
10"
NEW HOSPITAL
ZONE 12"
NEW HOSPITAL
ZONE 12"
3-2
63
372
179
2 1/2"
1-7
61
P-1
1-4
56
57
58
59
NEW 12" SANITARY
SEWER
EXISTING MIDDLE
ZONE
2-17
EXISTING HOSPITAL
ZONE 15"
11
60
19
347
52
2-18
51
53
40
NEW 12" SANITARY
SEWER TO 500 SOUTH
/ GUARDSMAN WAY
2-9
EXISTING GAS TO
MAIN CAMPUS
CENTRAL PLANT
1-3
97
17
82
67
3-1
49
92
91
103
3-6
2-8

ULEGEND

- EXISTING HIGH TEMP WATER
- EXISTING STORM DRAIN
- EXISTING SANITARY SEWER
- EXISTING NATURAL GAS
- EXISTING SLC WATER
- EXISTING HOSPITAL ZONE – UU WATER
- EXISTING MIDDLE ZONE – UU WATER
- EXISTING GOLF COURSE ZONE – UU WATER

- NEW HIGH TEMP WATER
- NEW SANITARY SEWER
- NEW NATURAL GAS
- NEW SLC WATER
- NEW HOSPITAL ZONE – UU WATER
- NEW MIDDLE ZONE – UU WATER
- NEW GOLF COURSE ZONE – UU WATER
- NEW CHILLED WATER

N

NEW AND EXISTING PIPING

SCALE: 1" = 400'

400' 200' 0' 400' 800'

UNIVERSITY OF UTAH

Neuroscience and Biomedical Research Tech Building

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SHEET CONTENTS

NEW AND EXISTING PIPING

C101

UNIVERSITY OF UTAH
UTILITIES MASTER PLAN

SOM
SKIDMORE OWINGS & MERRILL LLP

VAN BOERUM & FRANK ASSOCIATES INC.
CONSULTING ENGINEERS

CONSULTANTS
PSOMAS - CIVIL
KEN GARNER ENGINEERING -
POWER, TELECOMMUNICATIO

LEGEND
- EXISTING HTW ZONE 1
- EXISTING HTW ZONE 2
- EXISTING HTW ZONE 3
- EXISTING HTW ZONE 4
- EXISTING HTW ZONE 5A
- EXISTING HTW ZONE 5B
- STEAM LINE
- PROPOSED HTW PHASE 1
- PROPOSED HTW PHASE 2
- PROPOSED HTW PHASE 3
- BLDG. PHASE 1
- BLDG. PHASE 2
- BLDG. PHASE 3
- FUTURE BLDG.
- PARKING STRUCTURE
- EXISTING BLDG.

REVISIONS

VBFA PROJECT #:	6495
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DATE:	Feb. 12, 2006

SHEET CONTENTS
High Temperature Water

N

U of U Utilities – High Temperature Water
SCALE: 1" = 600'

600' 300' 0' 600' 1200'

C101

UNIVERSITY OF UTAH
UTILITIES MASTER PLAN

SOM
SKIDMORE OWINGS & MERRILL LLP

VAN BOERUM & FRANK ASSOCIATES INC.
CONSULTING ENGINEERS

CONSULTANTS
PSOMAS - CIVIL
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POWER, TELECOMMUNICATIO

LEGEND
- EXISTING CW
- PROPOSED CW PHASE 1
- PROPOSED CW PHASE 2
- PROPOSED CW PHASE 3
- BLDG. PHASE 1
- BLDG. PHASE 2
- BLDG. PHASE 3
- FUTURE BLDG.
- PARKING STRUCTURE
- EXISTING BLDG.

N

U of U Utilities – Chilled Water
SCALE: 1" = 600'

600' 300' 0' 600' 1200'

REVISIONS

VBFA PROJECT #:	6495
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DRAWN BY:	DL
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SHEET CONTENTS
Chilled Water

C101