Attachment 3

King County
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March 3, 2003

The Honorable Cynthia Sullivan
Chair, King County Council
Room 1200
COURTHOUSE

Dear Councilmember Sullivan:

The attached report is submitted in response to two provisos identified in the 2003 King County budget requiring the Executive to submit a report by March 1, 2003 on alternatives to constructing a new facility in which to locate the Communication Center, Transit Police, and Service Quality. The report describes current locations and operational requirements of each of these activities and examines the suitability of several existing King County buildings, including the King Street Center, the Yesler Building, and the former FAA building at the King County International Airport. For purposes of comparison, the report also examines the suitability of the Exchange Building – the present location of Transit's Communication Center – and a new facility that would be constructed at the Atlantic-Central Base.

The report is divided into four sections:

- A description of the business functions of each of the three groups to be co-located in a new operations center;
- Issues driving the need to relocate the Communications Center;
- Criteria used to evaluate alternative sites;
- Evaluation of the additional sites as called for in the 2003 budget proviso.

The screening process considered the costs, risks, and effectiveness of existing County-owned sites to meet both engineering and business needs. A critical finding is that the existing County facilities cannot be cost-effectively remodeled to meet the essential facility standards for government communications centers and police facilities that would enable them to continue functioning after a disaster. Over a twenty-year time frame, none of the remodel options provides a significant cost advantage over new construction. Moreover, each of the alternatives falls short in meeting a number of King County Transit's key business needs and its obligations in the County's Emergency Management Plan. The report concludes with the recommendation that the Communication Center, Transit Police and Service Quality groups should be co-located in a new facility to be constructed at the expanded Atlantic-Central Base site.

The location of the Communication Center and Transit Police is a major long-term strategic decision for King County. The facility is essential to the safe, reliable, and efficient operation of buses, light rail and the tunnel. A timely decision is critical and affects radio replacement, tunnel closure, joint operation, and the light rail system design. It should be noted that the current estimate of the cost of constructing a new facility is significantly lower than the planning-level estimate developed in 2001. The current estimate for constructing this facility is $15.01 million, as compared with earlier estimate of $22 million.

Department of Transportation (DOT) staff completed this report with the assistance and cooperation of the director and staff of the Facilities Management Division who provided access to buildings, helped in the review of building systems, and provided feedback on the cost analysis. DOT also received assistance from the manager of ITS related to the radio system and fiber optics, and the assistant manager of the Emergency Management Division provided insights into essential services and disaster recovery plans. If you have questions regarding this response please call Don Campbell, Project Manager, Department of Transportation, at (206) 684-1045.

Sincerely,

Ron Sims
King County Executive

Enclosure

cc: King County Councilmembers
ATTN: David deCourcy, Chief of Staff
Shelley Sutton, Policy Staff Director
Paul Carlson, Lead Staff, Transportation Committee
Anne Noris, Clerk of the Council
Steve Call, Director, Office of Management and Budget
Paul Tanaka, County Administrative Officer, Department of Executive Services (DES)
Kathy Brown, Division Director, Facilities Management Division
Harold S. Taniguchi, Director, Department of Transportation (DOT)
Rick C. Walsh, General Manager, Metro Transit Division, DOT
Don Campbell, Project Manager, Design and Construction,
Transit Division, DOT

Transit Communications Center – 2003 Budget Proviso Response

Introduction

Two new capital projects were introduced as part of the 2002 Transit Capital Budget: the Communication Center Relocation and the Transit Support Facility in conjunction with the Atlantic Central Base Expansion project. The 2002 proposed budget included $20 million for the two projects. The 2002 adopted budget included a proviso for the Communication Center Relocation requiring the Transit Division to perform a detailed analysis of alternative sites for the Communication Center. The analysis was to include remaining in the Exchange Building as well as moving to other County-owned facilities.

Transit engaged CH2M Hill, a consultant selected to design the Atlantic Central Base Expansion and the Transit Support Facility, to perform the additional planning and predesign work to respond to the 2002 Council Proviso. The consultant worked with Transit staff to establish design criteria based on the business needs and technical requirements for the facility, identify alternative sites, and screen those sites to determine the preferred location.

The Transit Support Facility was initiated as a result of the Atlantic Central Base Expansion project. The primary purpose of the base expansion is to maximize the bus capacity of the base. In part, this is accomplished by displacing support functions currently located on the base that are not directly related to the dispatching, operations, and maintenance of buses. Support functions on the base include revenue processing, marketing distribution, non-revenue vehicle maintenance, transit police, service quality, training and administration.

Initially, the project team identified revenue processing and marketing distribution as candidates to be relocated to a new Transit support facility. This became the basis for the 2002 budget proposal and appropriation. However, by mid-2002 it became clear that those two groups should not be moved. The location of the revenue processing center could not be cost-effectively modified for vehicle maintenance functions and the current facility would meet Transit's needs for at least ten years. In addition, Transit was able to acquire a critical parcel of property at the north end of 6th Avenue that made relocation of the marketing distribution function unnecessary.

Two other support groups, service quality and transit police, however, are located in space that is better used for core base functions. Both service quality and transit police have grown considerably and are in need of larger quarters. The timing of the Communication Center relocation and the changing scope of the Transit Support Facility project led Transit to rethink and take advantage of an opportunity to implement a long desired re-consolidation of the radio operators and service quality. Co-locating them would make it easier and more effective to exchange information and keep updated on the status of transit service disruptions as they are being resolved. Including the transit police at the same location also made good business sense. Having the units in a building with an immediate occupancy rating would ensure their ability to continue operations during emergency situations and meet the expectations of the Regional and King County disaster plans.

Transit Communications Center – 2003 Budget Proviso Response

Based on the planning and predesign work done as part of the report, Transit proposed changes to the 2003 CIP for both the Communication Center and the Transit Support Facility projects. Those changes included a reduction of approximately $4 million to the Communication Center project and an increase of $6 million to the Transit Support Facility project. The cost increased because a larger building was needed to accommodate service quality and transit police than the facility originally planned for marketing distribution and revenue processing. These changes were in recognition of a preferred plan to combine the two facilities into one "Support Facility." Additional space was included to support control of Sound Transit light rail. Sound Transit is projected to pay $1 million to offset this increase.

As part of the 2003 budget adoption, two provisos were added as follows:

> ***The Transit Division shall submit a report by March 1, 2003, on alternatives to constructing a new facility in which to locate the control center, the transit police and the service quality group. The report should describe the location and operational requirements of each of these activities and examine the suitability for this purpose of existing county buildings including, but not limited to the King Street Center, the Yesler Building and the former FAA building at the King County International Airport.***
>
> ***PROVIDED FURTHER THAT:***
>
> ***Of the appropriation for CIP project A00531, Move Support Functions, $50,000, which is the full appropriation shall be expended only for a detailed suitability analysis of existing county buildings to accommodate the transit police, the service quality group and the control center. The suitability analysis should be conducted with the assistance of the department of construction and facilities management and address any extraordinary facility requirements associated with these activities.***

The present report, which responds to these two provisos, is divided into four sections:

- A description of the business functions of the three groups to be co-located at a new Operations Center
- A discussion of the issues driving the need to relocate the Communications Center
- An enumeration of the criteria used to evaluate alternative sites
- A comparative evaluation of the additional sites as called for in the 2003 Budget provisos.

Business Functions

Communication Center

The Communication Center manages voice and data radio communication for over 1,000 buses and support personnel operating 24 hours a day, 7 days a week. The current center operates with over thirty staff consisting of radio coordinators, tunnel controllers, service communications staff, and technical personnel to maintain the computer, software, and radio systems.

On a daily basis staff perform the following functions:

- Develop and direct the transit system response to operational service/vehicle problems in the community
- Direct the response to security incidents on buses and at Transit Facilities
- Anticipate, develop and direct the system's response to planned events such as parades and demonstrations
- Monitor computerized downtown Seattle transit tunnel management systems including the Supervisory Control and Data Acquisition (SCADA) system, Closed Circuit Television cameras, emergency alarms, and the surface trolley traction power system during off-hours.

In an emergency, the Communications Center becomes the Transit Emergency Operations Center (EOC) and supports the King County EOC. The Regional Disaster Plan for Public and Private Agencies in King County, to which King County is a signatory, indicates KCDOT will "Operate a transit emergency operations center to coordinate all transit emergency services and the rapid restoration of normal transit services." It further directs King County to "Coordinate public information...and return transit services to normal levels as soon as possible following the emergency or disaster." The King County Emergency Management Plan also directs Transit to coordinate and provide emergency bus transportation support and services, and to be self-sufficient for at least three days. Meeting the code requirements that would satisfy the need to perform adequately as an emergency operations and communication center would add approximately 15 percent to the cost of new construction.

Transit Police

The transit police form a precinct of the King County Sheriff's Office. Transit police enforce the Transit code of conduct as well as other state and local laws. They patrol the transit system and its facilities by bus, on bikes, and by car, and respond to emergency alarms and other incidents that occur throughout the transit system. Officers will typically be in and out of the office several times a day dropping off cases and filling out paper work. Being close to downtown Seattle increases their effectiveness because much of their work occurs there. Parking for the police vehicles is needed near their office.

The Transit Police rely on close interaction with staff in the Communication Center and Service Quality to share information and coordinate responses to incidents. Co-locating them would make it easier and more effective to exchange information and keep updated on the status of situations as they are being resolved. Current code also requires new police precincts to be constructed as essential facilities. This "immediate occupancy" rating ensures their ability to continue operations during and after emergency situations.

Service Quality

The service quality group includes both office staff and personnel that are responsible for the "in-the-field" management of the operational responses to service interruptions. These interruptions may be caused by construction, accidents, special events, adverse weather, fire and police activity, or power outages. Service quality also provides on-the-street customer assistance and investigates accidents involving Transit vehicles, as well as monitoring on time performance and implementing solutions to service-related problems such as reroutes and schedule adjustments. Several years ago, Service Quality was co-located with the Communications

Center, but Service Quality was forced to move because of the space and building access limitations of the Exchange Building. Many of the staff operate specialized "high top" vans while on duty in order to be able to transport riders who use wheelchairs. Parking for these twenty vans is needed adjacent to Service Quality offices.

Critical Equipment
In addition to staff, the Communication Center houses Transit's communications equipment. The equipment includes critical hardware and computer systems for voice/data radio and the automatic vehicle location (AVL) system. There is a multi-line phone system, radio channels or frequencies to talk to bus drivers, radio consoles for the coordinators, closed circuit television screens, emergency alarm equipment, and the tunnel monitoring systems with fiber optic connections. The equipment requires sophisticated electrical, heating, cooling and fire suppression and alarm systems to ensure reliability.

Issues Related to the need to Relocate the Communications Center

There are several major issues facing the Communication Center, including the reliability of the Communication Center's current building ,the need to replace the existing radio system, and the need for additional space and equipment to manage the operation of LINK light rail.

Reliability of the Current Location
Since 1984 the Transit Communication Center has been located in leased space on three separate floors of the Exchange Building. This 1929 vintage structure is designed and managed for use as general office space. Over the years Transit's space and influence in the building has diminished while the responsibilities and complexity of the Communication Center function have grown. Both the SCADA equipment and the emergency back-up systems are now only accessible through other tenants' space. The vulnerability and unreliability of the existing location have become serious problems. On a daily basis, this space lacks adequate electrical, heating, cooling, and fire protection systems to provide the reliability needed. Multiple failures in recent years have affected operations. The building is not structurally capable of withstanding a major earthquake without incurring significant damage that could render it uninhabitable for an extended period of time.

Radio System Replacement
The existing radio and SCADA equipment have reached the end of their design life and parts are becoming increasingly difficult to find as they wear out. In addition, the Federal Communication Commission (FCC) has mandated changes to the radio spectrum currently used by Transit. The changes will require Transit to purchase and install different equipment as the system migrates to a new bandwidth.

For more than a year, Transit has been working with the ITS division of the Department of Information and Administrative Services on the issues around Transit's moving to a new radio system. This work includes addressing the FCC mandate and its impacts as well as coordinating Transit's radio system with other County networks such as Public Safety. The migration to a new radio frequency is consistent with the King County Comprehensive Radio Plan. Transit also agreed with ITS that any new Transit radio system interface will: 1) have the technologies to

bridge with the Public Safety radio system, 2) have the capability to expand to support other county wireless services (such as wireless data services for non-Transit agencies), and 3) strive to use existing infrastructure wherever feasible.

Sound Transit

The decision by the County and Sound Transit to have Transit be the operator of Sound Transit's LINK light rail system impacts the Communication Center project. The entire SCADA system that is used to manage the tunnel will be replaced by Sound Transit. The new system will be used to control both the tunnel systems and the systems to support the entire LINK light rail operation. Sound Transit will provide a new fiber optic line for train and tunnel control along the rail alignment. The 2002 Tunnel Agreement adopted by County Ordinance established joint bus and train operations for the tunnel with trains and buses controlled within the tunnel by staff located in Transit's Communication Center. This will require a connection to the fiber optic line in the rail corridor and space in the Communications Center for equipment and personnel.

Sound Transit has worked closely with King County in the site selection for the Communication Center. If King County selects a facility location suitable for operation of the entire LINK system, this will be an incentive for co-location of the entire train control operation in a combined facility. Operation of trains and buses out of a single center has been proven elsewhere to provide a more effective and reliable transit system than separating bus and train controllers. Sound Transit is expected to share in the costs of the new facility. Operation and cost sharing issues will be resolved as part of the LINK Operating agreement currently being negotiated between Sound Transit and King County.

Because the current radio and SCADA systems must remain functional until the new system is operational, the new equipment will have to be installed, tested and accepted in a location other than the Exchange Building. The need to replace these systems, therefore, provides an opportunity for Transit to examine alternatives for locating this equipment in the most appropriate long-term location.

Site Evaluation Criteria

The seven criteria listed below were established for the evaluation of alternative sites for the Operations Center.

Lowest 20-year life-cycle cost, based on initial and ongoing expenditures

The life-cycle cost, calculated as the net present value of twenty years of estimated expenditures, is evaluated base on the initial cost of construction plus ongoing operations and maintenance costs. Initial costs include engineering, project administration, and construction management; associated costs for contracting, sales tax, and appropriate contingency allowances are added. Ongoing costs include lease costs for space used by Transit, lease and moving costs for any displaced County groups, and operating charges for utilities and maintenance. Parking costs for Transit vehicles are also included when appropriate. For purposes of this analysis the planning estimate of 40,000 square feet has been assumed (for the communications, police, and service quality functions). As a means of determining the sensitivity of the analysis to this projection, the analysis was recalculated based on 30,000 square feet. While a reduction in space reduces the cost of the potential options, it does not impact the relative ranking of the financial criteria. Table 1 presents a summary of these cost estimates and the most significant determining criteria for the communication center location.

Minimize risks to facility and systems

The building that houses the Transit Communications Center should be able to withstand a serious earthquake, remain fully functional, and allow for immediate return to occupancy. This would enable a speedy restoration of bus radio communications and facilitate the implementation of emergency operational plans throughout the region. Critical systems such as electrical power and cooling would be designed with backup or redundancy to ensure that a component failure would not prevent a critical system from operating. A 500-kilowatt backup generator and three days on-site supply of fuel would be required to provide uninterrupted operation.

A new building would be built to "essential facility" standards as specified by code for governmental communication centers and police facilities. A remodeled facility would be retrofitted to meet these standards and its building systems would be upgraded or replaced to the extent practical to ensure reliable operations. Structural reinforcement of existing buildings usually cannot achieve the levels of safety and performance that can be provided with new construction, but weak links and critical components can be reinforced to reduce the risk of failure. Evaluation of alternatives must consider the difficulty and uncertainties associated with retrofitting existing buildings and recognize that the structural integrity will be less than that of a new facility. Where it is not considered feasible to retrofit an existing building so that it meets "essential facility" or "immediate occupancy" standards, this has been noted in the attachments.

Support the schedule of the radio replacement project

Ideally, the facility for the new radio system would be ready by early 2005 for delivery, installation, and testing of the radio equipment. The HVAC and electrical and fire protection systems in that facility must be operational at that time. Communication cables and microwave radio links to the Columbia Tower must be complete and ready for radio equipment testing.

Address Transit's business needs.

Facilities closer to Seattle's central business district would enable the work of the transit police and service quality units to be performed more efficiently and effectively. The three primary functions (communications, transit police and service quality) must be able to share common data and resources to handle daily operations and respond to natural or man-made incidents. Communication between the groups needs to be reliable and efficient. They must remain functional 24/7 and be able to work together to develop coordinated strategies and communicate action plans to field personnel (drivers, service units, and transit police) in response to incidents or demands on the system. The location must be able to serve effectively as the Transit EOC.

Sites closer to downtown would also allow the service quality group better accessibility to operators at Central, Atlantic and Ryerson bases to deal with route, safety and schedule concerns. Half of the bus fleet operates out of these bases.

Satisfactory level of security

Entry and use of the building should be controlled to prevent damage or intrusion. A single-purpose building with a limited number of users is likely to be the easiest to secure. A location not controlled by the County and with public access will not provide the desired level of security. Co-location of the transit police in the building would improve the security.

Adequate space and infrastructure
The combined space requirement of these groups has been estimated at approximately 40,000 square feet, much of it designed to be suitable for intensive computer-based systems and functions. These estimates assume room for growth in the size and complexity of the functions, as necessary.
The layout should promote effective and continuous work within and among the groups. Electrical and mechanical systems must have adequate capacity, reliability and backup when necessary to maintain all critical functions. The building floor plan and systems should be designed with flexibility to facilitate modifications allowing for evolving security and operational conditions in the future.

Reliable connections to the downtown Seattle tunnel, buses, and light rail vehicles.
The location must be able to be reliably connected by a fiber optic line to the light rail control system running along the length of the LINK alignment. This would provide for train control and would also be used to monitor fire/life safety and other control systems in the downtown tunnel. All other SCADA control of Transit functions such as trolley rectifiers, emergency phones, closed circuit television, and fire alarm monitoring must be provided via reliable high-speed data connections such as T-1 lines or dedicated phone lines. WAN connection for County communication and data would also be required. Line of sight or relay to Columbia Tower would be required for radio microwave transmission without interference with or from other radio systems.

Evaluation of Alternative Sites

As part of the 2002 study, over 54 locations were examined. They included a number of County-owned buildings, the Exchange Building, and other available properties. On the basis of criteria established in the study, a final short list of sites was developed which included the Exchange Building, a new building at Central Atlantic Base, Key Tower Building, Music Vend, and the Maintenance of Way building at the Sound Transit Operations and Maintenance Facility. The screening process analyzed the suitability of each of the alternatives, based on consideration of effectiveness in meeting the technical requirements and the business needs for the Communication Center, as well as specific risks and drawbacks. To reduce the study costs, full analysis of all County-owned properties was not done if, in the judgement of the project team, it was unlikely that the site could be remodeled to meet the facility requirements. The preferred site recommended by the consultant was a new building to be constructed as part of Central Atlantic Base expansion.

In response to the 2003 budget provisos, Transit has now completed a more in-depth evaluation of five sites:

- Yesler Building
- King Street Center
- 7300 Perimeter Road Building at the King County Airport
- A new building at Central Atlantic Base
- Exchange Building

The evaluation included an examination of the existing building systems and estimated what it would cost to make upgrades to those systems to bring them to equivalent functionality with a

new building, to the extent feasible. Because budget authority for design and construction of the chosen alternative will be requested at a later date in a stand-alone ordinance, and because the final project cost will depend on the exact specification of facility size and construction standards, a range of cost estimates – based on differing assumptions about space requirements - have been included in this request. Table 1, below, summarizes estimated costs for a facility of 30,000 square feet total (considered the minimum necessary for the current level of operations) and 38,000 square feet total (considered the optimum size, providing for current operations, moderate growth, and some flexibility.) The table also summarizes, in the Comments section, the most critical decision criteria for the facility. Attachments 1 and 2 present more detailed information on the functional and site selection criteria for each of the sites.

Table 1: Analysis Of Suitability Of Five Potential Sites

(In $000s)	Not	Atlantic Central (new Building)		Exchange Building		7300 Perimeter Building		Yesler Building		King Street Center	
Options		40,000 sq. ft.	30,000 sq. ft.	40,000 sq. ft.	30,000 sq. ft.	40,000 sq. ft.	30,000 sq. ft.	40,000 sq. ft.	30,000 sq. ft.	40,000 sq. ft.	30,000 sq. ft.
Capital Costs											
Comm. Ctr. Construction	1	4,884	4,384	3,673	3,298	4,500	4,500	4,250	4,250	3,000	3,000
Transit Police & Service Quality Construction	2	4,320	3,570	4,620	4,151	1,750	1,000	650	425	300	150
Engineering, Project Mgmt, Contingency	3	5,806	5,011	6,358	5,706	4,792	4,213	3,757	3581	2,530	2,413
Total Capital Costs	4	**15,010**	**12,965**	**14,651**	**13,155**	**11,042**	**9,713**	**8,657**	**8,256**	**5,830**	**5,563**
Operating Costs (shown as NPV 20 years, 5%)											
20-Year Lease (inc. parking)	5			3,170	3,170	4,450	4,450	11,760	9,440	11,368	8,962
Operating & Maintenance	6	3,200	2,280	2,740	2,740	1,183	1,183	2,036	1,580	1,870	1,463
One-time relocation costs for displaced agencies	7			83	83	393	393	617	533	603	532
Total Operating		**3,200**	**2,280**	**5,993**	**5,993**	**6,026**	**6,026**	**144,313**	**11,553**	**13,841**	**10,957**
Residual building value	8	(1,640)	(1,417)			0		0		(654)	(491)
Total NPV of 20-year Capital & Operating Costs		**16,408**	**13,828**	**20,425**	**19,147**	**16,903**	**15,739**	**22,940**	**19,809**	**18,930**	**16,029**
Comments: See Attachments 1 & 2 for additional comparison of functional and selection criteria.				• Does not meet current seismic codes. • Cannot be upgraded to "Immediate Occupancy" rating. • Building systems and access controlled by landlord, not King County.		• Cannot be upgraded to "Immediate Occupancy" rating. • No line of sight to Columbia Tower. • One-mile fiber optic run (LINK controls) susceptible to construction interruptions. • Proximity to rail lines and airport increases building risk. • Uncertainty of FAA cooperation for lease and radio operations.		• Cannot be upgraded to "Immediate Occupancy" rating. • Code and permit requirements increase uncertainty for timing and costs. • DCFM indicates building cannot support space requirements.		• Substantial modifications to building systems required. • Cannot be upgraded to "Immediate Occupancy" rating. • Would have to relocate over 200 staff to another location. • Structural design of building may restrict necessary upgrades	

Notes:
1. Estimated cost to bring facility as close as possible to optimum design criteria for Transit Communications Center.
2. Estimated costs to provide space for these functions either at stated location (AFB, Yesler, and KSC) or elsewhere (7300 Building and Exchange Building).
3. Includes 8.9% sales tax on all construction-related items: 12% allowance for A&E professional services; 15% for construction management; and 20% contingency for new construction, or 30% contingency for remodel projects.
4. Cost of property (approximately $600,000) not included in capital costs. Land was already purchased as part of Atlantic/Central project.
5. Estimated NPV (5% discount rate) of 20 years' lease costs. KSC figure includes cost of leased space for displaced KC agencies.
6. O&M estimates compare cost of operating and maintaining sites.
7. Estimated costs to relocated staff currently in space that would be occupied by communication center, service quality and transit police under each option.
8. Residual building value after 20 years based on 30 year life.

Conclusion

The conclusion of this further evaluation is that constructing a new facility at the expanded Atlantic Central Base site is the preferred alternative. Its location near downtown Seattle and three bus bases, line of sight connection to the Columbia Center and the fact that it is adjacent to the LINK light rail alignment are all advantages. What sets it apart from other similarly located sites is that as new construction, it could be built to meet the immediate occupancy standards specified for government communication centers and police facilities. In the judgement of the consultants and transit staff, existing facilities cannot be upgraded to meet those standards. The 7300 Building at the King County Airport, which might be the lowest cost alternative, is in a riskier location, being adjacent to rail lines and the airport. It is also too far from the LINK alignment, it does not have line of sight to the Columbia Tower, it does not meet the seismic rating, and it is too far from the Seattle core to co-locate Transit Police and Service Quality. The particular advantages and drawbacks of each of the other alternatives are summarized below.

Attachments

- Comparison of Functional Criteria for Potential Remodel Sites
- Comparison of Site Selection Criteria for Alternative Sites

Attachment 1: Comparison of Functional Criteria for Potential Remodel Sites

Description	Functional Requirements	Exchange Building	7300	Yesler	KSC
Basic Construction	• 24/7 Operation. • Seismic/architectural shell meets current codes. • HVAC (heating, ventilation and air conditioning) system capable of handling computer/communication equipment. • Adequate power to run equipment. • Fiber optic and communication wiring for bus and light rail.	• Transit pays extra costs to operate beyond normal business hours. • 1929 building vulnerable to earthquake damage. • HVAC has inadequate capacity; supplemental system is needed. • Extensive modifications to building electrical and mechanical systems required to meet needs. • Fiber optics and communication cables and equipment run through multiple floors. Requires access via other tenant areas. Cables vulnerable to damage.	• Additional lease costs for 24/7 operation • Portion of building has been reinforced, but 2- story portion does not and would require reinforcing. New roof and interior rehabilitation needed. • HVAC systems would have to be replaced. • New larger electrical service would be added. • Some fiber optics and communication wiring in building. However, tunnel and light rail controls will require added fiber optic lines from LINK route to KCIA.	• Additional lease costs for 24/7 operation. • Some seismic upgrades needed. Floor load capacity limit requires that loads be spread out evenly at added cost. Elevator cars need to be replaced. • HVAC system would be replaced in Comm Center area and upgraded in other areas to handle load. • Additional electrical service required. Building system update required to current code. • Some fiber optics and communication wiring in building, however, tunnel and light rail controls will require new cable connections.	• Additional costs for 24/7 operation. • Building meets current fire and seismic code for office building. • HVAC would be supplemented to meet additional load. Maintaining energy code compliance and LEED rating for building would be difficult. • Electrical service upgrades to provide added conditioned power for computer equipment. • Some fiber optics and communication wiring in building, however, tunnel and light rail controls will require new installation.
Increased Reliability	• 500KW generator and 3-day fuel storage. • UPS (uninterruptible power supply system). • Tiered access control via floor layouts and locked doors. • Backup cooling system for computer equipment as part of new system. • Redundant components on critical systems.	• Mobile generator would be needed, not feasible to put large equipment in the existing basement • UPS will have to be upgraded and moved. • Access control and elevator lobby would be modified but adjacent floors would remain unrestricted. • No effective backup for cooling system is possible. • Electrical and mechanical retrofits to increase reliability are not practical.	• Existing generator would be replaced. Site for adequate diesel storage adjacent to building would be needed. • UPS would be added. • Additional security and access controls would be required. • Backup cooling system for computer equipment as part of new system in Comm Center. • Remodel to provide redundant components on critical systems.	• Large new generator required but basement location and fuel storage are problems. • UPS to be added in basement requiring added ventilation and fire protection. • Security system would be upgraded and access to building reconfigured. • Backup cooling system for computer equipment would be added.	• Additional back-up generator capacity needed but location and fuel storage are problems. • UPS to be added in basement. • Floor layout inside beyond elevator lobby remodeled with walls and doors to provide tiered security. • Supplemental system designed with integral backup.
Essential Facility	• Structure designed to Uniform Building Code "Essential" requirements. • Piping, ceiling, windows, etc., to allow return to Immediate Occupancy rating per FEMA rating.	• Does not meet seismic codes for regular office occupancy. Not practical to upgrade entire 20-story building. • Significant risk building cannot be reoccupied after earthquake.	• Retro single-story portion to meet Immediate Occupancy rating. • Two-story portion would be upgraded but meeting FEMA rating for Immediate Occupancy is not practical.	• Building meets current "life safety" level only. • Some upgrades would be made where feasible in stairwells and ceilings, but Immediate Occupancy rating cannot be achieved because retrofit of entire building would be needed.	• Not practical to reinforce entire building to meet Immediate Occupancy requirement. • Selected upgrades to stairs, ceiling and mechanical system to reduce the risk of seismic damage in Comm Center area.
Radio system	• Microwave line of sight can be provided to antenna on Columbia Tower.	• Microwave antenna link exists between Exchange Building and Columbia Tower.	• Line of sight to Columbia Tower not possible. Microwave relay station and /or reliable fiber optic cable connection needed.	• Line of sight to Columbia Tower is available.	• Line of sight to Columbia Tower is available.
Comments	• Better cost certainty and compliance with design criteria for new construction, compared to remodels.	• Building owner approval required for all changes. • Space will be used by KC or sublet through remaining period of pre-paid lease if Comm Center is moved. • Control of the building and building systems during emergency situations not under KC control. • Location next to Federal Building increases risks.	• FAA would have to approve use and lease. Currently allowing max. 5-year leases for non-aviation uses. • Radio transmission restrictions due to proximity to airport are unknown. • Need to relocate Sheriff's Special Ops. Group.	• Vertical load limits restricted to 60 psi (100 psi for newer buildings) will increase design and construction costs to place heavy components like batteries. • Greater cost risk due to age of building and difficulty of this remodel.	• HVAC upgrade less costly if Comm. Center located on upper floor (this disrupts DNR). • Will need to relocate over 200 staff from KSC, potentially increasing operating costs for those moved.

Attachment 2: Comparison of Site Selection Criteria for Alternative Sites

Selection Criteria	New building at Atlantic Central Base	Exchange Building	7300	Yesler	KSC
Schedule Support the radio replacement project in 2005	With aggressive schedule building can be ready for radio equipment installation in early 2005.	Additional space would need to be leased and it may be a problem to get contiguous space. Negotiations with owner over lease and modifications pose risk to schedule and costs.	With aggressive schedule building could be ready for radio equipment installation in early 2005. High risk that $1.0 M cost for microwave radio or fiber optic connections will delay radio project. FAA airport or radio issues will affect schedule and are not resolved at this time.	Unknowns related to remodeling and permit-mandated code updates require longer schedule. Extensive remodel could trigger additional work throughout building. High risk of delay to radio project.	Would require most of a single floor. Existing tenants would have to be relocated. Interior and system improvements can be done by 2005 if agreement on tenant relocation and to modify building can be obtained by July, 2003.
Business Needs Address Transit's business needs with emphasis on working relationships with related transit groups including the Transit police and service quality staff	Excellent location close to CBD and adjacent to largest base. Building to accommodate all functions and interrelationships. Proximity to parking and access to main roads and freeways saves travel and response time. Best connection to LINK.	Location in CBD reduces travel time but parking would have to be leased. Not practical to move Transit Police or Service Quality to this location due to building access and parking problems.	Distance from CBD increases travel and response time for Transit Police and Service Quality. (Work requires frequent trips from work location to CBD daily.) Not effective location and this offsets benefit of location with Communication Center.	Building layout can accommodate needs but not conducive to good arrangement for efficient business operation. Parking for Police and Service Quality vehicles would have to be obtained in KC garage or surface lots and is a potential issue.	Location in CBD is advantage but local street access is a problem. Requires added parking in building garage with frequent 24-hour access. Meets business need for combined location if one entire floor can be vacated. (Impact on business needs of displaced groups not known.)
Reliability Minimize risks to facility and systems that would compromise essential functions	Building would be designed to meet FEMA "Immediate Occupancy" rating. Systems can be designed to provide reliable backup of critical components without increased energy consumption associated with other alternatives.	Building does not meet current building or fire codes. Cannot be brought up to desired structural rating. Significant risk building cannot be occupied after earthquake. Landlord controls access to the building and building systems. In an emergency, the Comm. Center could be affected	Single-story portion of the building has been seismically upgraded to "immediate occupancy". Two-story section would likely be closed after significant earthquake. New HVAC and electrical systems required for reliable operation.	Building does not meet life safety or seismic codes. Significant risk that building cannot be occupied after earthquake. Reduced reliability of backup systems.	Building meets current life safety standards but not "essential facility". Seismic upgrades necessary and "immediate occupancy" criteria cannot be obtained. Major modifications to electrical and HVAC systems required.
Security Provide a satisfactory level of security to prevent damage or unauthorized entry	Security system would be designed to meet functional requirements. Tiered access via floor layout and locked doors.	Comm. Center is on 12th floor of office building. Access restricted by card reader. No constraints on tenants above or below space. Building owner controls access and systems operation, which can be affected by any nearby incidents. (Location by Federal Building poses increased risks.)	Single story would allow for installation of necessary security by tiered access and locked doors. Perimeter fencing required. Proximity to rail lines and airfield increases risk to building.	Security system would have to be upgraded. Multiple tenants from several organizations reduces ability to control security of this building.	Card access security system in place. Building security is good since KC is primary tenant.
Space Needs Space and infrastructure to meet long term needs for the bus system, joint bus/rail tunnel operation, and light rail (if needed)	Building layout adequate for functions with some growth and flexibility. Building systems would provide for equipment and three-days of independent operation as directed by the King Co. Emergency Management Plan ESF 1.	Adequate space is currently available in the building. Installation of new radio and Sound Transit SCADA systems in this older leased building is not best long term solution. Will need to lease space on two floors. Building systems inadequate and may not be able to be upgraded to meet equipment requirements.	Space is available for Comm Center and Transit Police. Additional space would have to be constructed for Service Quality. Location is over a mile from tunnel alignment. FAA would have to approve use and lease.	Adequate space to co-locate functions and meet long-term needs. Requires extensive remodeling. Replacement and upgrading of building systems required. Communication connections are feasible	Adequate space to co-locate functions and meet long-term needs if existing tenants moved out. Major modifications to building are necessary. Fiber optic and microwave connections are feasible.
Communication Connections Meet all engineering requirements for reliable connection to tunnel, transit and light rail control and communications systems	Microwave radio connection to Columbia Tower is feasible. Least expensive location for fiber optic connection to light rail.	Additional wiring will be constrained by building owners. Access to wiring chase is limited. Microwave radio connection exists.	Microwave relay station required for radio to get to Columbia Tower. (Impact on airport operations unknown at this time.) Costly to run fiber optics from light rail alignment. High risks regarding feasibility, cost and schedule.	Microwave and fiber optics connections feasible due to proximity to tunnel.	Microwave and fiber optics connections feasible due to proximity to tunnel.