







VIRGINIA STREET

MONONGALIA STREET

OHIO AVENUE

BERKELEY STREET

RALEIGH STREET

TENNESSEE AVENUE

PENNSYLVANIA AVENUE

KANAWHA BOULEVARD

US RT 119

ELK RIVER



0 100 200 400



CHARLESTON
CIVIC CENTER

CHARLESTON TOWN
CENTER MALL

QUARRIER STREET

VIRGINIA STREET

New Riverfront District

ELK RIVER

CLENDINNING STREET

TRUSLOW STREET

GOSHORN STREET

KANAWHA BOULEVARD

KANAWHA RIVER





QUARRIER STREET

VIRGINIA STREET

LEON SULLIVAN WAY

BROOKS STREET

MORRIS STREET

MASSEY ALLEY

ARLING COURT

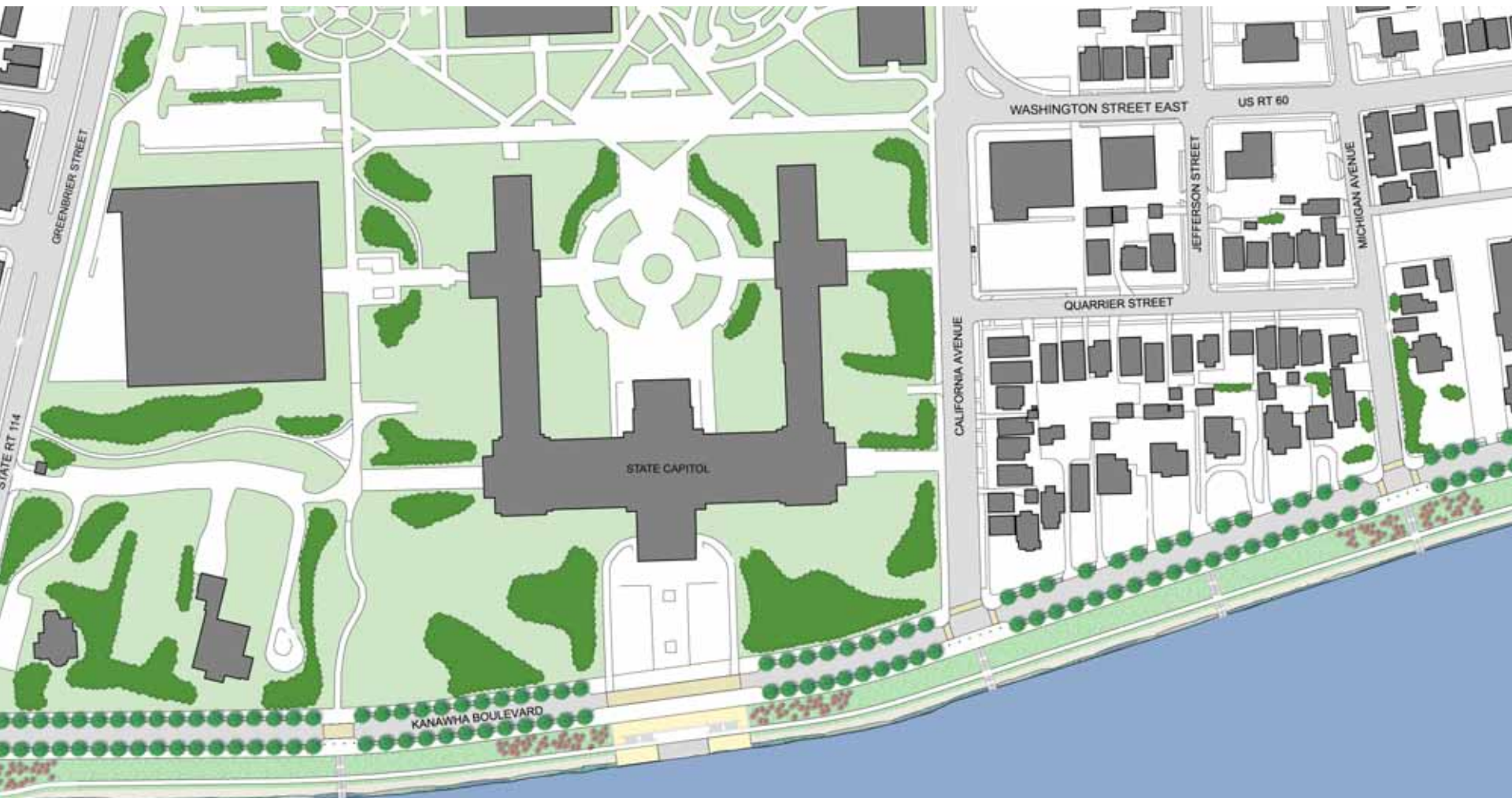


KANAWHA RIVER



0 100 200 400







PIEDMONT ROAD

US RT 60

WASHINGTON STREET EAST

JEFFERSON STREET

MICHIGAN AVENUE

VEAZY AVENUE

QUARRIER STREET

CALIFORNIA AVENUE

STATE CAPITOL

KANAWHA RIVER



I-77 AND I-64

I-77 AND I-64

WASHINGTON STREET EAST

CHESAPEAKE AVE

EAST AVENUE

KANAWHA BLVD/US RT 60

SEC RT 60/63

KANAWHA AVENUE SE

KANAWHA AVE SE

0 100 200 400'

Funding Strategy

The projects outlined in the Charleston Riverfront master plan fall into three primary categories: flood control, transportation and economic development. In order to achieve all of the projects, a strategy which maximizes the leveraging ability of local funds, most likely in the form of general obligation bonds, will need to be performed. This means that a major portion of the funding will need to come from federal funding, either from federal grant programs or from direct project appropriations. In order for Charleston to be most successful in obtaining its share of federal appropriations, its leadership representation must be diligent in providing the needed information and updates to its legislative representation. This information includes specific “cost-benefit” data which shows the “potential value captured,” in the form of increased private investment, generation of additional tax revenues and positive effects on job creation, etc., as a result of the proposed projects. Succinct briefing sheets on the various components should be prepared and circulated. Finally, regular meetings should be held with the legislators and their key legislative aides. It is extremely important that quarterly meetings be held with the legislators and their key staff in their offices on Capitol Hill, in order to ensure that primacy of the City’s projects and to re-enforce the critical need for funding.

The following is a brief description of some of the major sources of federal funding that should be considered for projects identified in the master plan.

The Water Resources Development Act (WRDA) authorizes new water resources related projects every two years. Administered by the Army Corps of Engineers’ (ACOE) civil works program, it is the nation’s largest water resources program and includes project for navigation, flood control, shoreline protection, hydropower, dam safety, water supply, recreation, environmental restoration and protection, and disaster response and recovery. This program represents one of the largest potential sources of funding for the City of Charleston. In order to receive funding the City will need to work with its legislators and the Huntington District of the Army

Corps of Engineers, in order to ensure that the projects receive priority attention within their project program.

The first step in an ACOE water resources development project is a study of the project’s feasibility. If the Corps has conducted a study in the area before, the new study can be authorized by a resolution (known commonly as a “survey resolution”) of either the House Transportation and Infrastructure Committee or the Senate Committee on Environment and Public Works. If the Corps has not previously studied the area, then an Act of Congress is necessary to authorize the study. The majority of studies are authorized by Transportation Committee survey resolutions.

Once authorized, the study process consists of two parts. The Corps first performs a reconnaissance study at federal expense, usually taking 12-18 months to complete. This phase defines the water resources problems and opportunities, assesses the potential sponsor’s level of interest and support for the identified potential solutions, evaluates federal interest, economic costs and benefits and environmental impacts of potential solutions.

If the reconnaissance study indicates that there may be a viable federal project and that a more detailed feasibility study should be undertaken, the Corps prepares a feasibility report, the cost of which is shared 50 percent by the federal government and 50 percent by the non-federal sponsor. The feasibility study examines project alternatives and recommends a project that is technically sound, environmentally acceptable, and economically justified. In accordance with cost-sharing formulas established by law, the study typically recommends a project that would be constructed on a cost-shared basis with a non-federal sponsor. After a full study is completed, the results and recommendations of the study are submitted to Congress in a final report of the Chief of Engineers.

Assuming the study recommendations are favorable, the next step is authorization. Project authorizations are traditionally contained in WRDAs. The typical prerequisite for including a project authorization in a biennial WRDA is a favorable report from the Chief of Engineers.

The Corps of Engineers also has authorities to construct certain small projects without specific authorization by Congress. These authorities,

known as the “continuing authorities program,” include beach erosion, navigation, flood control, streambank and shoreline protection, snagging and clearing, modifications to existing projects for the benefit of the environment, and aquatic ecosystem restoration. Some of the projects within the Charleston Riverfront master plan may qualify under this authorization, if deemed a priority by the Corps.

The Transportation, Community, and System Preservation (TCSP)

Program is a program administered by the Federal Highway Administration (FHWA) comprehensive initiative of research and grants to investigate the relationships between transportation, community, and system preservation plans. Cities are eligible for discretionary grants to carry out eligible projects to integrate transportation, community, and system preservation plans and practices that specifically reduce environmental impacts of transportation and examine community development patterns and identify strategies to encourage private sector development patterns and investments that support these goals.

The Federal Highway Administration has not solicited applications for the TCSP Program. To date the TCSP Program has solicited only those applications for projects specified by Congress in the Conference Reports accompanying the 2005 Omnibus Appropriations Act. The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFTEA-LU) authorized the TCSP Program through FY 2009. A total of \$270 million is authorized for this Program in FY’s 2005-2009.

Recreation Trails Fund (RTP) and the **Transportation Enhancement Program (TEP)** both funded under the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFTEA-LU) and administered by the West Virginia Department of Transportation. These programs have relatively low caps on grant size (\$100,000 per grant), but could be used to supplement other larger funding sources. Both programs have a 20 percent local matching funds requirement. Projects which can receive funding include the construction of new trails and other trail related facilities, water trails, parking, bridges, signage, etc.

Section 108 Loan Guarantee Program and the Economic Development Initiative (EDI) of the U.S. Department of Housing and Urban Development (HUD) is the loan guarantee provision of the Community Development Block Grant (CDBG) program. Section 108 provides communities with a source of financing for economic development, housing rehabilitation, public facilities, and large-scale physical development projects. This makes it one of the most potent and important public investment tools that HUD offers to local governments. It allows them to transform a small portion of their CDBG funds into federally guaranteed loans large enough to pursue physical and economic revitalization projects that can renew entire neighborhoods. Such public investment is often needed to inspire private economic activity, providing the initial resources or simply the confidence that private firms and individuals may need to invest in distressed areas. Section 108 loans are not risk-free, however; local governments borrowing funds guaranteed by Section 108 must pledge their current and future CDBG allocations to cover the loan amount as security for the loan. The City of Charleston has established a successful track record with HUD having developed numerous housing and economic development projects with this federal agency. Under the Section 108 Program the City could finance economic development activities eligible under CDBG, acquire real property, rehabilitate of publicly owned real property; construct, reconstruct, or install of public facilities (including street, sidewalk, and other site improvements); perform related relocation, clearance, and site improvements and utilize funds for the payment of interest on the guaranteed loan and issuance costs of public offerings.

HUD’s EDI provides grants to local governments to enhance both the security of loans guaranteed through the Section 108 Loan Program and the feasibility of the economic development and revitalization projects they finance. EDI has been the catalyst in the expanded use of loans through the Section 108 Program. Because Section 108 loans represent a potential risk to local governments’ Community Development Block Grant (CDBG) allocations which governments pledge against potential repayment shortfalls, the EDI program offers communities a way to decrease the level of risk

to their CDBG funds. HUD's Economic Development Initiative helps local governments manage and reduce this risk in at least two different ways. A local government may use an EDI grant to provide additional security for the Section 108 loan (as a loan-loss reserve or debt-service, for example), thereby reducing the exposure of its CDBG funds in the event of a default in loans made locally with the Section 108 funds. It may also use this flexible grant to simply make the project more feasible by paying some of the project costs with grant funds or by reducing the interest rate to be paid from a revolving loan fund.

Only amendments to previously approved grants are being made. No new grants are being awarded. Congressional earmarks are still possible however, so the City of Charleston would need to work directly with its federal legislators to obtain an appropriation.

The Appalachian Regional Commission (ARC) was established by Congress in 1965 to support economic and social development in the Appalachian Region. Appalachia is a 200,000-square-mile region from the spine of the Appalachian Mountains in Southern New York to Northern Mississippi. The ARC program's region includes parts of 13 states, including all of West Virginia. The ARC's program specifically focuses on improving infrastructure for community and economic development projects which increase the social and economic completeness of the region. Congressional appropriations vary from year to year, but generally West Virginia receives between \$6 million and \$7 million for its ARC projects.

The ARC does not have authority to write implementation grants directly. Therefore it grants moneys through other Federal agencies, such as HUD. These agencies act as an administering agency for Appalachian Regional Commission projects. On the average about \$10 million dollars of ARC projects are assigned to HUD each year. The majority but not all are carried out under the State's CDBG Program (the balance are carried out under the CDBG Entitlement Program). In order for HUD to administer funding for an ARC project, the project must meet all CDBG program requirements.

Projects receiving ARC funding through HUD are initiated by the West Virginia Development Office; state-requested projects are approved for funding by ARC. The CDBG program serves as the vehicle to transfer funds to states or local government for approved projects, but HUD plays no role in the initiation or selection of projects for ARC funding. West Virginia Development Office staff reviews projects and recommendations are presented to the governor for approval. Projects are then forwarded to the ARC for final approval. ARC funding could be used as a match for other small grant programs which require match funds, such as the state administered transportation programs.

Conceptual Master Plan Cost Estimate

This cost estimate is for conceptual purposes only, to understand general orders of magnitude for projects within the master plan. Further schematic design, design development and cost estimating will be required. Quantities and costs are subject to change based on final design detail and project timing.

Item	Quantity	Unit	Unit Price	Construction Cost	Comments
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Boulevard Modification (Option A)					
Mobilization/Gen. Site Prep.	5	mi	\$15,000.00	\$75,000.00	
Demolition (curb, median, 16' of roadway)	25,000	lf	\$30.50	\$762,500.00	
New curb	25,000	lf	\$18.00	\$450,000.00	
Landscape treatment in new area	400,000	sf	\$7.00	\$2,800,000.00	6' parkway with trees 30' o.c.; 10' wide path w/ irrigation
Lighting/furnishings	1	lump	\$400,000.00	\$400,000.00	
Shade Trees	1,000	ea	\$850.00	\$850,000.00	4" caliper minimum
Subtotal				\$5,337,500.00	

Overlooks - Large					3 total: Florida St, Park Avenue, Ruffner St
Earthwork	18,500	cy	\$15.00	\$277,500.00	
Retaining wall and ramps	600	lf	\$425.00	\$255,000.00	
Upper terrace and planting	12,000	sf	\$17.00	\$204,000.00	
Switchback ramp	100	lf	\$425.00	\$42,500.00	
Staircase	240	sf	\$28.00	\$6,720.00	
Platform over water	4,500	sf	\$95.00	\$427,500.00	
Lighting/furnishings	1	lump	\$50,000.00	\$50,000.00	
Subtotal				\$1,263,220.00	
x 3				\$3,789,660.00	

Overlooks - Small					4 total: Brooks, Elizabeth, Greenbrier, and Chesapeake
Retaining wall	125	lf	\$425.00	\$53,125.00	
Upper platform	2,500	sf	\$17.00	\$42,500.00	
Switchback ramp	125	lf	\$425.00	\$53,125.00	
Staircase	750	sf	\$28.00	\$21,000.00	
Platform over water	2,500	sf	\$95.00	\$237,500.00	
Lighting/furnishings	1	lump	\$50,000.00	\$50,000.00	
Subtotal				\$457,250.00	
x 4				\$1,829,000.00	

Item	Quantity	Unit	Unit Price	Construction Cost	Comments
Paths and Stairs					
Widen mid-level pathway	40,000	sf	\$5.00	\$200,000.00	
New staircases from Blvd. to water	16,800	ea	\$28.00	\$470,400.00	average 70' long x 8' wide = 560 sf each x 30 total new
Subtotal				\$670,400.00	
Slope Plantings					
Mix of woody and herbaceous plants	1,000,000	sf	\$2.50	\$2,500,000.00	
Flowering Trees	850	ea	\$850.00	\$722,500.00	
Subtotal				\$3,222,500.00	
Magic Island - 340,000 sf total (8 acres)					
Demolition	200,000	sf	\$0.50	\$100,000.00	
Earthwork	100,000	cy	\$15.00	\$1,500,000.00	assume clean, dry fill from off site
Utilities	1	lump	\$50,000	\$50,000.00	water, sewer, gas, electric, phone
Paving - Plaza	15,000	sf	\$8.00	\$120,000.00	75% standard concrete; 25% special paving
Paving - Walks	12,000	sf	\$4.00	\$48,000.00	6' wide asphalt
Paving - Large staircase	5,000	sf	\$28.00	\$140,000.00	one staircase at Delaware Ave.
Paving - Small staircases	4,500	sf	\$28.00	\$126,000.00	two staircases at Pennsylvania Ave. plaza
Paving - Ramp	1,200	sf	\$15.00	\$18,000.00	6' wide concrete; handicapped accessible 5%
Paving - Children's Playground	2,500	sf	\$5.00	\$12,500.00	soft surface
Feature Fountain - passive	1	lump	\$850,000.00	\$850,000.00	entry fountain at Pennsylvania St. entrance
Feature Fountain - interactive	1	lump	\$500,000.00	\$500,000.00	jets in paving at upper plaza near pavilion building
Pavilion Building	1	lump	\$500,000.00	\$500,000.00	coffee shop, restrooms approx. 2,500 sf
Platforms for boat tie-ups	7,000	sf	\$95.00	\$665,000.00	one at Ohio; one at Pennsylvania
Lighting	75	ea	\$3,500.00	\$262,500.00	12' pedestrian standard
Shade Trees	150	ea	\$850.00	\$127,500.00	4" caliper minimum
Flowering Trees	100	ea	\$850.00	\$85,000.00	
Lawn/Plantings	250,000	sf	\$1.00	\$250,000.00	
Promenade with hard edge	1,300	lf	\$550.00	\$715,000.00	includes balustrade and lighting
Subtotal				\$6,069,500.00	

Item	Quantity	Unit	Unit Price	Construction Cost	Comments
Elk River Bridge					
Demo/paving/sidewalk/lighting/furnishings	35,000	sf	\$100.00	\$3,500,000.00	two 12' lanes x 500 lf
Subtotal				\$3,500,000.00	
Haddad Riverfront Park					
Demolition/Earthwork/Site Prep	40,000	sf	\$5.00	\$200,000.00	
Utilities	1	lump	\$50,000.00	\$50,000.00	
Retaining Wall at Union Building	400	lf	\$1,200.00	\$480,000.00	
Paving - Plaza at Union Building	20,000	sf	\$15.00	\$300,000.00	special paving
Paving - New Access Road	750	lf	\$9.00	\$6,750.00	
Paving - Boat Platform	3,000	lf	\$120.00	\$360,000.00	
Stairs/ramps	2,000	sf	\$28.00	\$56,000.00	
Canopy	1	lump	\$250,000.00	\$250,000.00	over amphitheater
Concession Buildings	1,500	sf	\$130.00	\$195,000.00	750 sf each
Overlook at Court St	5,000	sf	\$95.00	\$475,000.00	
Landscape	1	lump	\$200,000.00	\$200,000.00	
Lighting/furnishings	1	lump	\$100,000.00	\$100,000.00	
Subtotal				\$2,672,750.00	
CONCEPTUAL ESTIMATE TOTAL				\$27,091,310.00	

Appendix A - Think Tank Minutes

Charleston Riverfront “Think Tank” Session

November 9, 2004

An open public meeting regarding Charleston’s riverfront was held on November 9, 2004 in Parlor A of the Charleston Civic Center, beginning at 6:30 p.m. The purpose of the meeting was to solicit and receive public input, ideas, suggestions and concerns regarding possible future development of Charleston’s riverfront. The meeting was conducted jointly by the Charleston Area Alliance and the Riverfront Development Committee of Charleston City Council.

Approximately 130 people attended the meeting. A copy of the list of attendees is attached to these meeting notes. Meeting participants appeared to represent a diverse cross-section of the community, and persons from neighborhoods throughout the city attended.

Mr. Joe Jones, Chairperson of the Charleston Area Alliance, opened the meeting by welcoming everyone present, and explaining the background to and purpose of the meeting.

Mr. Joe Jones introduced Mayor Danny Jones, who encouraged everyone to participate actively in helping shape Charleston’s future, and to provide their thoughts, ideas and suggestions. Mr. Joe Jones noted the attendance of representatives of Environmental Design Group, who were present to provide consultation and artistic rendering services as people brainstormed ideas, and introduced Tom Heywood, who served as facilitator of the meeting.

Mr. Heywood briefly outlined the structure, purpose and agenda of the meeting. The meeting was structured as a public brainstorming process, to elicit ideas, thoughts, suggestions and concerns. Mr. Heywood encouraged attendees to be bold in their thinking and dreams, noting that there is no such thing as a right or wrong vision or dream. Through a public brainstorming process, the city’s leaders hoped to better be able to determine whether there is public consensus regarding aspects of the possible re-development of Charleston’s riverfront, and if so, what the essential elements of a common vision might be.

The attendees were seated in groups of roughly 10-12 persons each. Each group was encouraged to identify a scribe and a reporter; to capture thoughts and ideas, and report the group’s work product at the end of the meeting. Numerous pictures, maps and photos of Charleston’s riverfront areas were available to assist participants in their brainstorming activities. Facilitators were present to assist each group with discussion and brainstorming.

The brainstorming session lasted approximately one hour, followed by reports from each of the groups to all those in attendance.

People were enthusiastic and focused in their brainstorming activities. Presenters from the breakout groups were uniformly articulate and effective in summarizing and communicating the ideas from their groups. All persons in attendance were respectful of one another, and of the ideas presented by others.

Attached to this meeting summary is a copy of the meeting notes prepared by Susie Salisbury, who served as a reporter of the ideas presented at the meeting. These notes capture the specific thoughts, ideas, observations and suggestions of the various groups at the meeting. In addition to the notes appended to this meeting summary, copies of the flip chart notes of the working groups themselves are available for review and inspection at the offices of Charleston Area Alliance.

There was broad consensus, approaching unanimity, on many ideas and themes. There were many ideas offered which people present seemed to react positively to, even though that particular idea may not have been suggested within several of the groups. Following is a summary of several broad themes which emerged from the brainstorming session.

- 1. Attendees Were Overwhelmingly Open to Change and Redevelopment of Charleston's Riverfront. Without exception, people in attendance voiced the belief that we can or should do something to better take advantage of Charleston's riverfront. The level of consensus on this fundamental issue – doing something versus doing nothing – was extremely high.*
- 2. Any Redevelopment Activities Should be Thoughtfully Undertaken. There was broad consensus that any future redevelopment should be done thoughtfully, with due attention given to historic preservation, riparian, environmental, traffic and safety issues and considerations. A professional planning and development process is called for.*
- 3. Creation of Green Space and Recreational Opportunities Should Be Priorities in the Redevelopment of Charleston's Riverfront. There was extremely broad consensus that the proper focus of any redevelopment effort should be to make the riverfront more accessible and user friendly for such activities as walking, biking, relaxing, enjoying the view, and possible water access. Possible use of boardwalks, viewing decks, benches and shade trees were mentioned by several groups.*
- 4. The Viewshed on the South Bank of the River is an Asset and Should be Enhanced as Part of an Overall Plan. Several groups noted that the south bank of the river is the viewshed for all of downtown Charleston, and there was broad consensus that consideration should be given to enhancing this viewshed as part of an overall development effort.*
- 5. There is Strong Public Support for Closing Down One or Two Lanes of the Boulevard as Part of an Overall Development Plan. Virtually every brainstorming group expressed support for, or openness to, closing down at least one or two lanes of the Boulevard as part of an overall riverfront redevelopment plan. The level of consensus on this point was extremely high, and was a striking aspect of the meeting. One group suggested possibly making Piedmont Road or another road the primary route of vehicular traffic from downtown to the East End, thereby permitting closure of the Boulevard altogether. Some groups suggested closing portions of Kanawha Boulevard*
- 6. The Land at the Confluence of the Kanawha and Elk Rivers (currently occupied by the Elk River Town Center Inn) Should be Studied for Possible Public Acquisition and Use as Part of the Overall Riverfront Redevelopment Plan. Several groups suggested linking linear green space along the Kanawha and Elk Rivers, and using the Town Center Inn property as a public park with significant potential in connection with any redevelopment plans.*
- 7. Restaurants and Shops, Rather than Office Buildings, Should be Considered for Possible Inclusion in the Redevelopment Plan. Participants were strong in their consensus that more office buildings should not be a part of the riverfront development plan. Several groups did suggest that restaurants and shops would be an appropriate part of a user-friendly redevelopment area, provided that such restaurants and shops were not heavily massed and did not impede public access to and use of recreational or green space.*
- 8. Boat Slips and Possibly Other Waterfront Facilities Should be Considered as Part of An Overall Redevelopment Plan. Most groups noted that some sort of boat docking facilities should be included as part of an overall plan. Several groups also suggested that redevelopment plans should include water taxis, which would carry people from one side of the river to the other. Some groups and individuals suggested more substantial*

waterfront development, possibly including house boat docking facilities or development of a marina complex. While there seemed to be strong consensus regarding the addition of some additional boating facilities, the structure of the meeting did not permit exploration of the level of consensus regarding the development of more extensive waterfront amenities.

9. *Any Riverfront Redevelopment Should Include Attractions. There was strong consensus that any redevelopment effort should include elements of attraction. Several groups specifically mentioned construction of a lighted fountain, and suggested Magic Island as a good location for such a feature (to attract the attention of those traveling through Charleston on the Interstate Highway). Other suggestions for attractions that could be included as part of a riverfront redevelopment plan included an aquarium and an outdoor, riverfront movie screen.*

10. *Existing Riverfront Amenities Should be Improved, to Encourage Use. Several groups suggested that existing riverfront amenities could be improved to enhance use. Many groups suggested building some sort of canopy over Haddad Riverfront Park, to create shade and make the facility more usable on hot summer days. Groups suggested elevating Magic Island and/or planting more trees on Magic Island to make the park more usable. Some groups suggested installing decking or a boardwalk around the Union Building, and otherwise exploring means of creating access around or through the Union Building.*

There was broad consensus among persons in attendance as to the ideas noted above. Many, many other ideas were offered at the meeting. However, the structure of the meeting did not permit exploration of the level of consensus that may exist in the community for all ideas suggested. Many of the ideas offered and reflected in the attached notes fall within the broad elements of consensus noted above. All ideas suggested at the meeting are worthy of further consideration and review.

The level of excitement at the meeting for riverfront development was exceptionally high. At the conclusion of the meeting, attendees voiced appreciation for what they had heard and learned at the meeting, and expressed their desire to continue to participate in a public discussion of the future of Charleston's riverfront. People in attendance expressed their thanks to City Council and to the Charleston Area Alliance for facilitating a public discussion about riverfront development, and encouraged our city's leaders to continue the Charleston riverfront study and development process.

Respectfully submitted,

Tom Heywood, Facilitator

January 30, 2005

Appendix B

Transportation Memo

CHARLESTON RIVERFRONT MASTER PLAN

Transportation Circulation Plan – Evaluation Overview

Background

Charleston's traffic and circulation system is organized around a traditional rectangular grid of streets in which some of the principle streets act as one way pairs. Kanawha Boulevard is at the southern edge of that grid paralleling the river. In the early part of the nineteenth century Kanawha Boulevard had buildings fronting both sides, at least in the immediate downtown area, but in the late 1930's these buildings were demolished to make way for a four lane highway, built in part with WPA funding, that totally transformed the riverfront. The only building with river frontage to escape demolition was the Union building which today stands between the River and the Boulevard creating a choke point at Capitol Street.

From 1940 until I-77 was completed in the 1970's Kanawha Boulevard acted as a major through route to and from communities up and down the river. As such its cross section with two approximately 13-foot lanes in each direction and a small central median was appropriate for the function it served. However, with the opening of the Interstate much through traffic was eliminated and since that time Kanawha Boulevard has served as a quick way to get into and out of the downtown area for local users.

Existing Conditions

Kanawha Boulevard hugs the Kanawha riverbank for the entire length of the study area from the S.R.60 Bridge to the west and the I-77 twin bridges to the east. In general, the boulevard is a four lane road that provides easy access from east to west across Charleston because there is no cross traffic to impede east-west vehicular flow. The parkway-like character of the road

is enhanced by the fact that trucks are banned from its use. For descriptive purposes the boulevard can be divided into three distinct sections each of which is slightly different in character and function.

A. South Side Bridge to I-77 Twin Bridges

The typical cross section on this stretch consists of four approximately 13-foot lanes with a small curbed central median, approximately six feet in width. To the north side there is a five-foot sidewalk and a parallel curbside parking lane. To the south, adjacent to the river, a five-foot paved trail, used by both pedestrians and cyclists, is situated behind a low barrier protecting users from moving traffic. On the river side there is no barrier or protection at the top of the steeply sloping grass riverbank. A second path of equal width parallels the first, halfway down the riverbank. Narrow flights of steps connect the two paths and continue down to the water's edge. Breaks in the barrier that separates traffic lanes from the foot/bicycle path do not align with these flights of steps or with cross walks across the Boulevard.

The major intersections along Kanawha Boulevard are signalized and control the capacity for traffic movement. However, the signals allow through traffic in the southernmost eastbound lane to move continuously. Southbound motorist turning left onto Kanawha Boulevard and proceeding east from side streets are restricted to turning into the lane adjacent to the median, which is separated from the through lane by a series of bollards. This arrangement allows eastbound vehicles to travel along Kanawha Boulevard without stopping and contributes to the impression that Kanawha Boulevard is the fastest way to travel across town. It is difficult for pedestrians to cross Kanawha Boulevard since this one lane of continuously moving traffic does not provide gaps in traffic flow that are typically provided by signalized intersections that stops to traffic in all directions. The Average Daily Traffic (ADT) volume in this segment was approximately 12,000 vehicles, well within the capacity of the roadway.

B. Elk River Bridge to South Side Bridge

This section is the heart of the downtown area. In this area events such as concerts and festivals are held on the waterfront and periodically attract large crowds of pedestrians. Even when events are not taking place, more pedestrians cross the boulevard to access the riverfront park than in the areas east and west of the downtown area.

The typical roadway cross section is four moving lanes with sidewalks on either side and no central median. Both the travel lanes and the sidewalk are reduced to minimal dimensions to skirt the Union Building. This building's entrance opens directly onto the sidewalk at its narrowest most constricted place, where it is only about four feet wide and where there is little room for pedestrians to stand while waiting to cross the street. Average Daily Traffic volume on Kanawha Boulevard between Capital and Court Streets was 14,400 vehicles in 2004. The highest vehicular volumes, along Kanawha Boulevard, are east of this section, between Broad and Dickinson Streets where ADT volume was 16,700 in 2004. All these volumes are well within the capacity of the roadway.

c. S.R. 60 to Elk River Bridge

This section, to the west of downtown Charleston, also provides four moving lanes with a small central median, a sidewalk on the south side and a walkway on the north adjacent to the edge of the riverbank. The travel lanes in this section are wider and there are few traffic signals than on the eastern section. Most of the side streets are controlled by stop signs allowing traffic on Kanawha Boulevard free movement east and west. Typical speeds are therefore somewhat higher, and crossing for pedestrians is more difficult than in the downtown or eastern sections. Average Daily Traffic volume was 15,000 vehicles in 2004, well within the capacity of the road.

Conclusions

Charleston is well planned with an Interstate network that carries through traffic and a traditional grid of streets providing adequate vehicular circulation within the town. There is adequate capacity within the street network to handle vehicular traffic demand. Kanawha Boulevard is a preferred local route into and out of the downtown area, but is functioning well within its theoretical ultimate capacity. However, the Boulevard, as currently configured creates a barrier for pedestrians and cyclists who wish to use the riverfront paths. In addition, these paths are themselves substandard in terms of width to accommodate both bicycle and pedestrian traffic. The location of the upper path, so close to the steep river bank, without a barrier is a safety concern especially considering the path is used by both cyclists and pedestrians.

Acknowledgements

The following individuals and organizations were participants in the Charleston Riverfront Master Plan process:

City of Charleston, West Virginia

Mayor Danny Jones
Rod Blackstone, Assistant to the Mayor
David Molgaard, City Manager
Dan Vriendt, Planning Director
Chris Knox, City Engineer

Charleston Riverfront Committee

Mary Jean Davis, Chair, Council At-Large
Archie Chestnut, 10th Ward
Bobby Reishman, 17th Ward
Tom Lane, Council At-Large
Charlie Loeb, Council At-Large
Rev. James Ealy, 4th Ward
Marc Weintraub, 11th Ward
Susie Salisbury, Charleston Area Alliance
Ed Talkington, 6th Ward

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Alistair McIntosh, Principal
Mitch Glass, Project Manager
Susannah Ross, Landscape Architect

Gannett Fleming, Inc.

Sue Gibbons, Vice President
Sean Garrigan
Jerry Mills, Transportation Division

Citizens of Charleston

A. Ceperley
Alan Rowe
Allan Tweddle
Barbie McCabe
Becky Cain
Beth Cade, Army Corps of Engineers
Bill Kelley
Brian Cokely
Carroll Hutton
Charlie Cooper
Charlie Jones
Dan Bock
Dan Burden
Dave Hardy
David Marshall
Dennis Strawn
Dolores Wilder
Drew Payne
Ed Maier
Ed Workman
Eddie Howard
Fred Armstrong
George Robson, City Traffic Engineer
Greg Burton
Henry Battle
Hoppy Shores, County Commissioner
Jerry Walker
Jim Thomas
Kerry Webster, State Representative
Mark Wolford
Martha Ballman

Martin Riggs
Mary Jane Vanderwilt
Mary Stanley
Michael Spoor, Army Corps of Engineers
Mike Hackl
Mike Stadjuhar
Nelle Chilton
Newton Thomas
Pat Bond
Pat Brown
Pat Epperhart
Richard Andre
Richard Howard
Robert Douglas
Susan Johnson
Ted Armbrecht
Tom Vasale
Travis Baldwin
Troy Body
Wayne Wilder

The City of Charleston Graciously thanks all those who participated in the public meetings

