

**Attachment 1A  
MEETING SUMMARY  
MEETING OF  
H2O – Help to Others – Program Board of Directors  
November 7, 2012  
Newport News**

**1. Program Status**

The H2O – Help to Others – Program Board of Directors held the annual meeting on November 7, 2012. HRPDC staff reviewed fundraising results for the period of May – October 2012 and the proposed budget and funding allocations for FY 2013 (see Attachment 1C).

During the discussion, the Committee noted that a large portion of assistance awards were made to residents of limited localities. Staff clarified that the same Salvation Army office serves those localities. HRPDC staff will follow-up with localities who did not attend the program kick-off meeting to promote awareness of assistance and encourage participation.

Regarding potential ideas for reducing printing costs of donation envelopes, HRPDC staff will inquire with HRSD as to whether bills can be revised to allow for write-in donation amounts or to allow customers donate by rounding their bills up to the nearest dollar.

**Action:** No action.

**2. Officers**

The officers of the H2O program Board of Directors do not have specified terms. The bylaws state that the officers serve at the pleasure of the Board. The Board voted to continue the terms of the current officers.

As follow-up to the discussion, HRPDC staff highlights the following from the program bylaws (full document provided as Attachment 1D):

**Purpose**

The corporation shall receive public contributions and allocate and distribute those funds to persons of demonstrated need who are unable to pay for water and related utilities.... (Lines 48-49)

**Members**

The corporation (Hampton Roads Help to Others) shall have two classes of members to be designated as “Community Members” and “Administrative Members”. (Lines 58-59)

- **Community Members** - Any city, county or town located in the Hampton Roads region of the Commonwealth of Virginia may be admitted as a “Community Member” of the corporation by majority vote of the Board of Directors. The initial Community Members shall include: the Cities and Towns of Chesapeake, Hampton, Newport News, Norfolk, Poquoson, Portsmouth, Smithfield, Suffolk, Virginia Beach, Williamsburg, Windsor; and the Counties of Gloucester, Isle of Wight, James City, Southampton, York. (Lines 60-63)
- **Administrative Members** - Any entity that provides financial or administrative services to the corporation in connection with the receipt, accounting for, and distribution of contributed funds may be admitted as a “Administrative Member” of the corporation by majority vote of the Board of Directors. The initial Administrative Member shall be the Hampton Roads Sanitation District. (Lines 64-68)
- Action for the election of directors that is otherwise required or permitted by this Section to be taken at a meeting of the Members may be taken without a meeting and without action by the Board of Directors. (Lines 77-79)

#### **Voting Rights**

Each Community Member and each Administrative Member shall be entitled to elect one (1) director of the corporation. No member shall be entitled to vote with respect to any matter other than the election of directors.

#### **Board of Directors**

- The business and affairs of the corporation shall be managed under the direction of its Board of Directors. (Lines 90-91)
- The number of members of the Board of Directors shall be equal to the number of Members of the corporation [17]. (Lines 92-93)
- The initial directors shall constitute (a) the directors of utilities, or equivalent staff position, of each initial Community Member, and (b) the person designated by the initial Administrative Member. Unless a successor director is elected by a Member, the term of each director, including an initial director, shall be coterminous with his or her service as director of utilities, manager, or in any other position held by the director at the time of election as a director. In any event, unless sooner removed, directors shall serve until their successors are duly elected and qualify. (Lines 94-100)
- A majority of the number of directors of the corporation [9] shall constitute a quorum for the transaction of business at any meeting of the Board. If a quorum is not present, a majority of those in attendance may adjourn the meeting from time to time until a quorum is obtained. (Lines 120-123)

#### **Executive Committee**

- The Board of Directors shall appoint an Executive Committee, which shall consist of all the officers of the corporation and two additional directors. To the extent practicable, at least two members of the Executive Committee shall be directors

representing residents of Chesapeake, Norfolk, Portsmouth, Smithfield, Suffolk, Virginia Beach, Isle of Wight County or Southampton County and at least two shall be directors representing other Community Member localities. All members of the Executive Committee shall serve at the pleasure of the Board of Directors. (Lines 141-147)

- The officers of the corporation shall be a President, a Vice President and a Secretary/Treasurer, each of whom shall be appointed by and shall serve at the pleasure of the Board. (Lines 170-172)
  - President – Tom Leahy, VB
  - Vice President – Larry Foster, JCSA
  - Treasurer, Secretary – Ted Henifin, HRSD
  - Additional Director – Brian Ramaley, NNWW
  - Additional Director – Al Moor, SU

**Action:** The Board voted to continue the terms of the current officers.

### 3. Program Eligibility Criteria

The Board discussed delinquency and penalty fees with respect to program eligibility. It was agreed that customers with accounts that have incurred penalties due to illegal actions (meter tampering, falsification of records, cut locks) are disqualified from program eligibility. The Board further agreed that customers with accounts that have incurred late payment or delinquency fees or other administrative fees associated with delinquency should still be eligible for program assistance. Customers will be encouraged to pay the fees or some portion of the bill if they are able. If the customer is not able to pay the fees, H2O assistance funds may be used.

HRPDC staff will follow-up with guidance to Salvation Army program administrators and propose amendments to the program criteria document to clarify the above.

**Action:** No action.

**Attachment 1A**  
**MEETING SUMMARY**  
**MEETING OF**  
**Directors of Utilities Committee**  
**November 7, 2012**  
**Newport News**

**1. Summary of the October 3, 2012 Meeting of the Directors of Utilities Committee.**

Item 4 of the meeting summary was amended as follows (strike through text indicated deletion; bold underlined text indicates addition):

- **Announcement:** John Carlock, HRPDC Deputy Director, announced to the Committee his intent to retire on January 31, ~~2012~~ **2013**. The Committee expressed its appreciation of Mr. Carlock's service and offered its congratulations.

**ACTION:** The summary of the October 3, 2012 Directors of Utilities Committee meeting was approved as amended.

**2. HRPDC Regional Socio-Economic Analysis**

Mr. Greg Grootendorst, HRPDC Chief Economist, briefed the Committee on the draft results of the 2040 Regional Socioeconomic Forecast, which will go before the Hampton Roads Transportation Planning Organization for approval in November. The socioeconomic forecast is completed every four years to support the Hampton Roads Long-Range Transportation Plan. The forecast includes projections on employment, population, households, and vehicles.

Mr. Grootendorst briefed the committee on the forecast elements, modeling methodology, assumptions, and draft results. It was noted that the forecast is not a representation of the potential growth in the region, but rather an estimation based on the region's projected employment growth. The forecast was developed using historical data, locality planning assumptions, comprehensive plans, and REMI – an econometric modeling and analysis tool. The recently released Weldon Cooper Center (WCC) 2040 projections also forecast locality population totals, though the WCC forecast methodology is solely based on historic data and does not incorporate local comprehensive plans or economic data.

A summary of the Committee's discussion and HRPDC staff responses to questions is provided below:

- The Committee discussed the sensitivity of the analysis to assumptions. HRPDC staff noted that this forecast is sensitive to migration, which is heavily influenced by employment, and that some sensitivity is observed when comparing different

- industries; for example, a decrease in military jobs has a larger impact than the same decrease in retail jobs. HRPDC staff does not believe the forecast is very sensitive to transportation capacity, since competitor areas are facing the same transportation issues as Hampton Roads.
- HRPDC staff clarified that locality planning staff has vetted the methodology, followed by public comment in October, and HRTPO approval on 11-7-12. It was noted that disparities between the HRPDC Forecast and WCC projections are likely due to the HRPDC's consideration of strategic growth areas.

### **3. UASI Draft Regional Improvement Plan Briefing**

Mr. Matt Branigan, Watermark Risk Management International, briefed the Committee on the Review Draft of the Regional Improvement Plan for Hampton Roads Water and Wastewater Systems Emergency Preparedness and Response. To address the project objectives, 5 strategies with 21 supporting initiatives were developed. Mr. Branigan reviewed the results of the Committee's prioritization of initiatives.

In general, Committee members were consistent in their identification of priority initiatives, and the group generally agreed with the list of high priority initiatives recommended by the project team. The group discussed the future use of the plan to support grant applications, to serve as an idea bank for internal utility planning, and to inform HRPDC work program tasks. The Committee could also choose to update initiatives periodically. Comments on the review draft should be submitted to HRPDC staff by November 23, 2012 for incorporation in the final document.

The Committee agreed that the December 2012 final report will be for official use only and will be provided to Utility Directors and locality Chief Administrative Offices (CAOs).

### **4. Groundwater Regulations**

HRPDC staff briefed the Committee on briefing materials to be presented to HRPDC regarding comments on the proposed Eastern Virginia Ground Water Management Area Regulations (9VAC25-600) and Ground Water Withdrawal Regulations (9VAC25-610). The Committee provided recommendations for revisions. As the public comment deadline is January 11, 2013, comments will be presented at the November 15, 2012 HRPDC Executive Committee meeting. The Commission will be asked to authorize the Chairman to submit final comments in December.

### **5. Other Business**

- HRPDC staff advised the Committee of upcoming efforts to collect data on sanitary sewer overflow reductions. HRPDC staff is working with the Chesapeake Bay Program on developing a protocol to estimate the nutrient inputs from illicit

discharges and to credit successful locality programs for elimination of such discharges.

- Staff also previewed a summary of groundwater permits in the Eastern Virginia Groundwater Management Area and the associated interactive map/data viewer. The final map will be distributed through a forthcoming HRPDC special report.

Committee Meeting Sign-In Sheet  
November 7, 2012

Attachment 1B

Locality/Agency	Representative	Representative	Representative	Representative
HRSD				
Chesapeake	Dean Perry			
Franklin				
Gloucester				
Hampton	Tony Reyes			
Isle of Wight	Frank Haltom			
James City County				
Newport News	Reed Fowler	Everett Skipper		
Newport News	Brian Ramaley	Scott Dewhirst	Natalie Mackie	
Norfolk	Kristen Lentz			
Poquoson				
Portsmouth	Erin Trimyer			
Smithfield				
Southampton				
Suffolk	Craig Ziesemer			
Surry				
Virginia Beach	Tom Leahy			
Williamsburg				
Windsor				
York				
HRPDC	Julia Hillegass	Katie Cullipher	Lisa Hardy	
HRPDC	Whitney Katchmark	Greg Grootendorst	Tiffany Smith	
New Kent				
DEQ				
EPA				
USGS				
VDH				
VDH				
AECOM				
AquaLaw				
Brown & Caldwell				
CH2M-Hill	Shelly Frie			
Christian Barton				
CNA	Joel Silverman			
HDR				
Hurt & Proffitt, Inc.				
McGuire Woods				
Rice Associates	Glenn Fox	Steve Tolison		
REMSA				
Troutman Sanders				
Virginia Fusion Center				
Virginia WARN				
URS				
Watermark Risk Management	Matt Branigan	Kurt Klingenberger		
Private citizens				

# H2O Board of Directors Meeting

November 7, 2012

Hampton Roads Planning District Commission



## Fundraising Results

- \* Donations May-October 2012
  - \* 3,569
  - \* \$31,466.00
  
- \* Envelopes
  - \* 824 donations
  - \* \$18,086
  - \* \$21.95 average donation
  
- \* Online
  - \* 2,745 donations
  - \* \$13,380
  - \* \$4.87 average donation

# Assistance May – October 2012

	# Customers	Assistance \$	Average Assistance
Gloucester	2	\$ 500.00	\$ 250.00
Hampton	11	\$ 1,216.96	\$ 110.63
Chesapeake	23	\$ 5,339.57	\$ 232.16
James City	9	\$ 1,616.53	\$ 179.61
Newport News	13	\$ 2,402.98	\$ 184.84
Norfolk	26	\$ 5,535.29	\$ 212.90
Portsmouth	1	\$ 245.86	\$ 245.86
Suffolk	24	\$ 2,598.86	\$ 108.29
Virginia Beach	99	\$ 10,902.50	\$ 110.13
Williamsburg	2	\$ 167.80	\$ 83.90
York County	3	\$ 353.83	\$ 117.94
Southampton County	1	\$ 250.00	\$ 250.00
<b>Total</b>	<b>214</b>	<b>\$ 31,130.18</b>	<b>\$ 145.47</b>

# Budget

FY12 H2O Promotions and Materials Budget	
	\$ 151,877.89
FY 12 Actual Expenses	
Envelopes	\$ 33,125.83
Website	\$ -
Conference Call	\$ 37.11
SCC Reporting	\$ 25.00
RFP Advertising	\$ 141.56
Newspaper Advertising	\$ 1,325.00
Printing	\$ 738.00
Miscellaneous 1	\$ 93.17
Onetime transfer	\$ 20,000.00
Total Expenses	\$ 55,485.67
Carryover for FY13	\$ 96,392.22

FY13 H2O Promotions and Materials Budget	
	\$ 116,392.22
FY 13 Budgeted Expenses	
SCC Reporting	\$ 25.00
Envelopes	\$ 27,000.00
Meeting Costs	\$ 200.00
RFP Advertising	\$ -
Donation Advertising	\$ 10,000.00
Total Budgeted Expenses	\$ 37,225.00
Anticipated FY14 Carryover	\$ 79,167.22

# Delinquent & Illegal Penalty Fees

- \* Late Fee
- \* Delinquent Fee
- \* Tampering Fee
- \* Pulled Meter Fee (Meter Removal Fee)
- \* Damaged Lock Fee
- \* Cut-Off Fee
- \* Returned Check Fee
- \* Leave Notice of Cutoff Fee

## H2O Program Administration: Eligibility

### ELIGIBILITY CRITERIA

**Must live in the service area of the participating utility.** Participating utilities include public water utilities in Hampton Roads and HRSD.

**Must be able to demonstrate that a personal or family crisis has inhibited ability to pay public utility bills.** For most utilities, service can be cut off if the individual is delinquent in paying his or her bill. Representative family or personal crises include, but are not limited to, death of a head of household or other family member, a catastrophic illness, a drastic decrease in family income, or other situations to be evaluated on a case-by-case basis. The program administrator should be given the flexibility to interpret what constitutes a personal or family crisis in specific cases.

**Is eligible for program assistance one time in any twelve-month period in the amount of \$250 or the balance due, whichever is less.** The committee believes these limitations on frequency and amount of assistance are equitable and fair to individuals in need.

**Must agree to participate in an educational program as recommended by the Salvation Army if there are signs of water waste.** Water conservation education is an example of a recommended program. The program administrator should be allowed the flexibility to determine the needs of the individual based on available services.

**Should assume some responsibility for partial payment of the bill.** The program administrator should be allowed the flexibility to determine how much, if any, of a partial payment would be required.

1 BYLAWS  
2 OF  
3 HAMPTON ROADS HELP TO OTHERS

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BYLAWS  
OF  
HAMPTON ROADS HELP TO OTHERS

ARTICLE I  
PURPOSE

The corporation is organized exclusively for charitable, educational, literary and scientific purposes. The corporation shall receive public contributions and allocate and distribute those funds to persons of demonstrated need who are unable to pay for water and related utilities, and shall have the power to conduct all other lawful affairs not required to be specifically stated in the Articles of Incorporation for which nonstock corporations may be incorporated under Chapter Ten of Title 13.1 of the Code of Virginia, 1950, as amended; provided, however, that it shall at all times be operated exclusively for charitable, educational, literary and scientific purposes, and subject to the limitations of Article IX below.

ARTICLE II  
MEMBERS

Section 1. Qualification and Voting Rights. The corporation shall have two classes of members to be designated as “Community Members” and “Administrative Members”.

(a) Community Members. Any city, county or town located in the Hampton Roads region of the Commonwealth of Virginia may be admitted as a “Community Member” of the corporation by majority vote of the Board of Directors. The initial Community Members shall include:

- |                          |                  |
|--------------------------|------------------|
| <u>Cities and Towns:</u> | <u>Counties:</u> |
| Chesapeake               | Gloucester       |
| Hampton                  | Isle of Wight    |
| Newport News             | James City       |
| Norfolk                  | Southampton      |
| Poquoson                 | York             |
| Portsmouth               |                  |
| Smithfield               |                  |
| Suffolk                  |                  |
| Virginia Beach           |                  |
| Williamsburg             |                  |
| Windsor                  |                  |

(b) Administrative Members. Any entity that provides financial or administrative services to the corporation in connection with the receipt, accounting for, and

66 distribution of contributed funds may be admitted as a “Administrative Member” of the  
 67 corporation by majority vote of the Board of Directors. The initial Administrative Member shall  
 68 be the Hampton Roads Sanitation District.

69 (c) Voting Rights. Each Community Member and each Administrative  
 70 Member shall be entitled to elect one (1) director of the corporation. No member shall be  
 71 entitled to vote with respect to any matter other than the election of directors.

72 Section 2. Meetings of Members. An annual meeting of the Members of the corporation  
 73 may be held at such place, either in or out of this Commonwealth, and at such time as the Board  
 74 of Directors may choose. Notice of the time and place of a meeting of the Members shall be  
 75 delivered personally or mailed, not less than (10) days nor more than sixty (60) days prior to the  
 76 date of such meeting (except as a different time is specified by law), to each Member, at its  
 77 address of record with the Corporation. Action for the election of directors that is otherwise  
 78 required or permitted by this Section to be taken at a meeting of the Members may be taken  
 79 without a meeting and without action by the Board of Directors. With respect to the election of  
 80 directors, each Member shall be entitled to sign one or more written consents setting forth the  
 81 name of the director to be elected by such Member and deliver such consent to the  
 82 Secretary/Treasurer of the corporation for inclusion in the corporate records.

83 Section 3. Removal of Members. Any Member may be removed as a Member by  
 84 majority vote of the Board of Directors. An Administrative Member shall be automatically  
 85 removed as a Member if it ceases to provide financial or administrative services to the  
 86 corporation.

## 87 ARTICLE III

### 88 BOARD OF DIRECTORS

90 Section 1. General Powers. The business and affairs of the corporation shall be managed  
 91 under the direction of its Board of Directors.

92 Section 2. Number and Election. The number of members of the Board of Directors shall  
 93 be equal to the number of Members of the corporation. Directors shall be elected by the  
 94 Members as provided in Article II. The initial directors shall constitute (a) the directors of  
 95 utilities, or equivalent staff position, of each initial Community Member, and (b) the person  
 96 designated by the initial Administrative Member, each as listed on Exhibit A attached hereto.  
 97 Unless a successor director is elected by a Member, the term of each director, including an initial  
 98 director, shall be coterminous with his or her service as director of utilities, manager, or in any  
 99 other position held by the director at the time of election as a director. In any event, unless  
 100 sooner removed, directors shall serve until their successors are duly elected and qualify.

101 Section 3. Regular Meetings. Regular meetings of the Board of Directors shall be held at  
 102 such times, at least annually, as shall be specified by the Board of Directors by resolution from  
 103 time to time. Except for such notice, if any, as may be required under applicable provisions of  
 104 the Virginia Freedom of Information Act, or other applicable law, such regular meetings may be

105 held without notice of time, place and purpose thereof. If not otherwise specified by resolution,  
106 the Board of Directors shall meet on the second Tuesday in November of each year.

107 Section 4. Special Meetings. Special meetings of the Board of Directors may be called  
108 by or at the request of the President or any two directors. Notice of the time and place of each  
109 special meeting shall be given orally or in writing to each director. Such notice, if given in  
110 person, by private carrier, telegram, telephone (including an answering machine or voice mail),  
111 electronic mail (email), or facsimile transmission, must be received at least twenty-four hours  
112 prior to such meeting, and, if given by non-electronic mail, must be mailed postpaid and  
113 correctly addressed and postmarked at least six days prior to such meeting; provided that if the  
114 notice is sent by registered or certified mail, the notice is sufficient if the receipt is signed by or  
115 on behalf of the addressee at least twenty-four hours prior to such meeting. Any director may  
116 waive notice of any meeting, and attendance at or participation in any meeting shall constitute a  
117 waiver of notice of such meeting unless the director objects at the beginning of the meeting, or  
118 promptly upon his arrival, to holding it or transacting business at the meeting and does not  
119 thereafter vote for or assent to action taken at the meeting.

120 Section 5. Quorum. A majority of the number of directors of the corporation shall  
121 constitute a quorum for the transaction of business at any meeting of the Board. If a quorum is  
122 not present, a majority of those in attendance may adjourn the meeting from time to time until a  
123 quorum is obtained.

124 Section 6. Manner of Acting. Unless otherwise provided for by these Bylaws, the act of  
125 the majority of the directors present at a meeting at which a quorum is present shall be the act of  
126 the Board of Directors. Any action required to be taken at a meeting of directors, or any action  
127 which may be taken at a meeting of directors, may be taken without a meeting if a consent in  
128 writing, setting forth the action so taken (and, if signed at a time other than at the time such  
129 action is to be effective, the consent states the dates on which each director signed) shall be  
130 signed before or after such action by all of the directors. Such written consent shall have the  
131 same force and effect as a unanimous vote.

132 Section 7. Presumption of Assent. A director of the corporation who is present at a  
133 meeting of the Board of Directors when any action is taken is deemed to have assented to the  
134 action taken unless he votes against or abstains from the action taken, or he has objected at the  
135 beginning of the meeting, or promptly upon his arrival, to the holding of the meeting or  
136 transacting specified business at the meeting. Any such dissenting votes, abstentions or  
137 objections shall be entered in the minutes of the meeting.

#### 138 ARTICLE IV

#### 139 EXECUTIVE COMMITTEE

141 Section 1. Membership. The Board of Directors shall appoint an Executive Committee,  
142 which shall consist of all of the officers of the corporation and two additional directors. To the  
143 extent practicable, at least two members of the Executive Committee shall be directors  
144 representing residents of Chesapeake, Norfolk, Portsmouth, Smithfield, Suffolk, Virginia Beach,  
145 Isle of Wight County or Southampton County and at least two shall be directors representing

146 other Community Member localities. All members of the Executive Committee shall serve at the  
147 pleasure of the Board of Directors.

148 Section 2. Rules of Procedure. The Executive Committee may select a chairman from its  
149 membership and a secretary who may or may not be a member of the Committee or of the Board.  
150 Subject to the requirements of law, the Executive Committee may prescribe the length of notice  
151 and manner of giving notice of its regular meetings, fix the number, not less than a majority,  
152 which shall constitute a quorum, and make its own rules of procedure, but if the same are not so  
153 prescribed, fixed or made, then they shall be as provided under these Bylaws. Special meetings  
154 may be held on call of the President, the chairman of the Committee or any two members of the  
155 Committee in such manner as prescribed by the Committee, but if not so prescribed, then in such  
156 manner as provided in these Bylaws for calling special meetings of the Board of Directors.

157 Section 3. Powers. When the Board of Directors is not in session, the Executive  
158 Committee shall have all power vested in the Board of Directors by law, by the Articles of  
159 Incorporation, or by these Bylaws, provided that the Executive Committee shall not have power  
160 to (i) admit or remove any Members, (ii) fill vacancies on the Board or on any of its committees,  
161 (iii) amend the corporation's Articles of Incorporation, (iv) adopt, amend, or repeal any portion  
162 or all of these Bylaws, (v) approve a plan of merger, (vi) approve the dissolution of the  
163 corporation, or (vii) take any action prohibited by express resolution of the Board. The  
164 Executive Committee shall report at the next regular or special meeting of the Board of Directors  
165 all action that the Executive Committee may have taken on behalf of the Board since the last  
166 regular or special meeting of the Board of Directors.

## 167 ARTICLE V

### 168 OFFICERS

170 Section 1. Officers. The officers of the corporation shall be a President, a Vice President  
171 and a Secretary/Treasurer, each of whom shall be appointed by and shall serve at the pleasure of  
172 the Board. In addition, the corporation shall have such other officers as may be appointed from  
173 time to time by the Board, including one or more Assistant Secretaries or Assistant Treasurers.

174 Section 2. President. The President shall preside at all meetings, shall make reports to the  
175 Board of Directors, shall have general supervision of the business and affairs of the corporation  
176 and shall possess such powers and perform such duties as are incident to the office, subject to the  
177 direction of the Board of Directors.

178 Section 3. Vice President. The Vice President shall take the place of the President and  
179 perform his or her duties whenever the President shall be absent or unable to act. If neither the  
180 President nor any Vice President is able to act, the Board of Directors shall appoint a member of  
181 the Board to do so on an interim basis. The Vice President shall also perform such other duties  
182 as shall from time to time be imposed upon him or her by the Board of Directors.

183 Section 4. Secretary/Treasurer. The Secretary/Treasurer shall serve as secretary of the  
184 Board of Directors and shall keep the minutes of all meetings of the Board of Directors, attend to  
185 serving and giving all notices of the corporation, and have charge of the corporate seal and such

186 books, records and papers as the Board of Directors may direct. The Secretary/Treasurer shall  
 187 also keep or cause to be kept full and accurate accounts of all receipts and disbursements in  
 188 books belonging to the corporation, shall have the care and custody of all funds and securities of  
 189 the corporation, and shall disburse the funds of the corporation as may be ordered by the Board  
 190 of Directors or the President.

191 Section 5. Other Officers. Other officers of the corporation appointed in accordance with  
 192 these Bylaws shall have such authority and duties as may be prescribed by the Board of Directors  
 193 or by the officer appointing them or as may generally pertain to their respective offices.

194 Section 6. Execution of Instruments. Checks, notes, drafts, other commercial  
 195 instruments, assignments, guarantees of signatures and contracts (except as otherwise provided  
 196 herein or by law) shall be executed by the President, the Secretary/Treasurer or such officer(s) or  
 197 employee(s) or agent(s) as the Board of Directors or any of such designated officers may direct.

## 198 ARTICLE VI

### 199 EMPLOYEES OTHER THAN OFFICERS

201 Subject to the authority of the Board of Directors, the President or any other officer  
 202 authorized by the President may employ such agents and employees, other than officers, as such  
 203 officer may deem advisable for the prompt and orderly transaction of the business of the  
 204 corporation. Any officer so doing may define the duties of such agents and employees, fix their  
 205 compensation and dismiss them. Such officer is authorized, on behalf of the corporation, to  
 206 execute any agency, employment, or other such agreements which may be necessary and proper  
 207 to effect the employment of such agent or employee.

## 208 ARTICLE VII

### 209 WAIVER OF NOTICE

211 Unless otherwise provided by law, whenever any notice is required to be given to any  
 212 Director of the corporation under the provisions of these Bylaws, a waiver thereof in writing,  
 213 signed by the person or persons entitled to such notice, whether before or after the time stated  
 214 therein, shall be deemed equivalent to the giving of such notice.

## 215 ARTICLE VIII

### 216 FISCAL YEAR

217  
 218 The fiscal year of the corporation shall begin on July 1 and end on June 30 of each year.

## 219 ARTICLE IX

### 220 FINANCES

221  
 222 Section 1. Depositories. The monies of the corporation shall be deposited in such banks  
 223 or trust companies as the Board of Directors shall designate, and all payments so far as

224 practicable, shall be made by checks. Checks and drafts as well as notes, bonds or other  
 225 instruments creating or evidencing an obligation for the payment of money shall be signed in the  
 226 name of the corporation or as the Board of Directors shall direct.

227 Section 2. No Inurement. No part of the net earnings of the corporation shall inure to the  
 228 benefit of, or be distributable to, its directors, officers or other private persons, but the  
 229 corporation shall be authorized to pay the expenses of the Board of Directors and to pay  
 230 employees reasonable compensation for services rendered and to make payments and  
 231 distributions in furtherance of the purposes set forth above. No substantial part of the activities  
 232 of the corporation shall be the carrying on of propaganda or otherwise attempting to influence  
 233 legislation, and the corporation shall not participate in or intervene in any political campaign  
 234 (including the publishing or distribution of statements) on behalf of any candidate for public  
 235 office. Notwithstanding any other provision of these Bylaws, the corporation shall not carry on  
 236 any other activities not permitted to be carried on by any corporation exempt from Federal  
 237 income tax under Section 501(c)(3) of the Internal Revenue Code of 1986, as amended (or the  
 238 corresponding provision of any future United States Internal Revenue law).

239 Section 3. Dissolution. If the corporation should be dissolved, its assets shall be  
 240 distributed to such organization or organizations organized and operating exclusively for  
 241 charitable, educational, literary or scientific purposes as shall at the time qualify as an exempt  
 242 organization or organizations under Section 501(c)(3) of the Internal Revenue Code of 1986, as  
 243 amended (or the corresponding provision of any future United States Internal Revenue law) as  
 244 the Board of Directors may determine.

## 245 ARTICLE X

### 246 SHARES OF OTHER CORPORATIONS

248 The President is authorized to vote, represent, and exercise on behalf of the corporation  
 249 all rights incident to any and all shares of any other corporation or corporations standing in the  
 250 name of the corporation. The authority herein granted to said officer to vote or represent on  
 251 behalf of the corporation any and all shares held by the corporation in any other corporation or  
 252 corporations may be exercised either by said officer in person or by any person authorized so to  
 253 do by proxy or power of attorney duly executed by said officer. Notwithstanding the above,  
 254 however, the Board of Directors, in its discretion, may designate by resolution any additional  
 255 person to vote or represent said shares of other corporations.

## 256 ARTICLE XI

### 257 SEAL

259 The seal of the corporation shall be in such form as may be approved from time to time  
 260 by the Board of Directors and said seal, or a facsimile thereof, may be imprinted or affixed by  
 261 any process or in any manner reproduced. The Secretary/Treasurer, any Assistant Secretary and  
 262 any other officer authorized by resolution of the Board of Directors shall be empowered to affix  
 263 and attest the corporate seal on all documents.

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ARTICLE XII

AMENDMENTS

Unless otherwise provided by law or indicated herein, these Bylaws or any of them may be altered, amended, or repealed and new Bylaws may be made upon approval of sixty percent (60%) of the members of the Board of Directors in office and eligible to vote, at any regular meeting, at any special meeting where such action has been announced in the call and notice of such meeting, or by unanimous consent in writing in lieu of a meeting.

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**EXHIBIT A**

**Initial Directors**

Jeffrey J. Bliemel, PQ  
Daniel G. Clayton III, WM  
Martin Schlesinger, GL  
Larry Foster, JCSA  
Edward G. Henifin, HRSD  
Julien Johnson, SH  
Thomas M. Leahy III, VB  
Kristen M. Lentz, NO  
Albert Moor II, SU  
Brian Ramaley, NN  
John Rowe, WN  
Richard Hartman, PO  
Peter M. Stephenson, SM  
John Veneziano, HA  
James K. Walski, CH  
Brian K. Woodward, YK  
Edwin P. Wrightson, IW



Presented to the Directors of  
Utilities Committee

Greg Grootendorst  
Chief Economist, HRPDC  
November 7, 2012

# 2040 SOCIOECONOMIC FORECAST DRAFT RESULTS

## 2040 Socioeconomic Forecast

### What it is:

- New forecast and input data for the HRTPO 2040 Long-Range Transportation Plan
- Provides an impartial and consistent set of socioeconomic projections that can assist organizations when planning for the region's future
- Our best estimate of socioeconomic data points for 2040 given the information that is currently available

### What it isn't:

- An update to the 2034 Socioeconomic Forecast from 2007
- A forecast for the years 2020 and 2030
- A forecast of "potential" growth for each jurisdiction in the region
- The last forecast until 2040 (each LRTP starts with a new, updated forecast)



## What is included in the forecast

- Population
- Employment by place of work
  - Retail
  - Industrial
  - Office
  - Other
- Households
- Employment by place of residence
- Passenger Vehicle Registrations

## Forecast Methodology

### Regional Control Totals

- ✓ 1. Literature Review of Forecasting Techniques
- ✓ 2. Review Best Practices
- ✓ 3. Data Collection
  - Raw Data
  - Locality Data
  - Research Assumptions
  - Model Inputs
- ✓ 4. Produce Draft Control Totals
- ✓ 5. Produce Draft Jurisdiction Totals
- ✓ 6. Review Draft with Planning Staff/LRTP Subcommittee
7. Present Control Totals for Approval

# Forecast Methodologies

## Literature Review & Best Practices

### Techniques

- Extrapolation
- Ratio
- Cohort
- Structural

### Best Practices

- Diverse methodologies
- Iterative process
- **Top Down / Bottom Up**
- Dynamic / Structural

#### Evidence Suggests:

- ✓ Forecast Accuracy Increases with Population Size
- ✓ Increases with slow steady positive growth rates
- ✓ Declines over time



2040 Socioeconomic Forecast

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# Forecast Methodology

## Data Collection and Modeling

- U.S. Census Bureau
- Bureau of Economic Analysis
- Bureau of Labor Statistics
- Virginia Employment Commission
- Internal Revenue Service
- Professional Literature & Resources
- Alternative Forecast Methods
  - Woods & Poole
  - Weldon Cooper Center
- **Information from Localities**



2040 Socioeconomic Forecast

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# Forecast Methodology

## Modeling

### What is REMI?

Regional Economic Models, Inc  
 REMI is one of the most advanced and sophisticated dynamic forecasting and policy analysis tools available on the market, widely recognized for quality, accuracy and integrity.

The model contains 70 unique industry sectors and over 700 policy variables to enable simulations that simultaneously forecast thousands of variables.

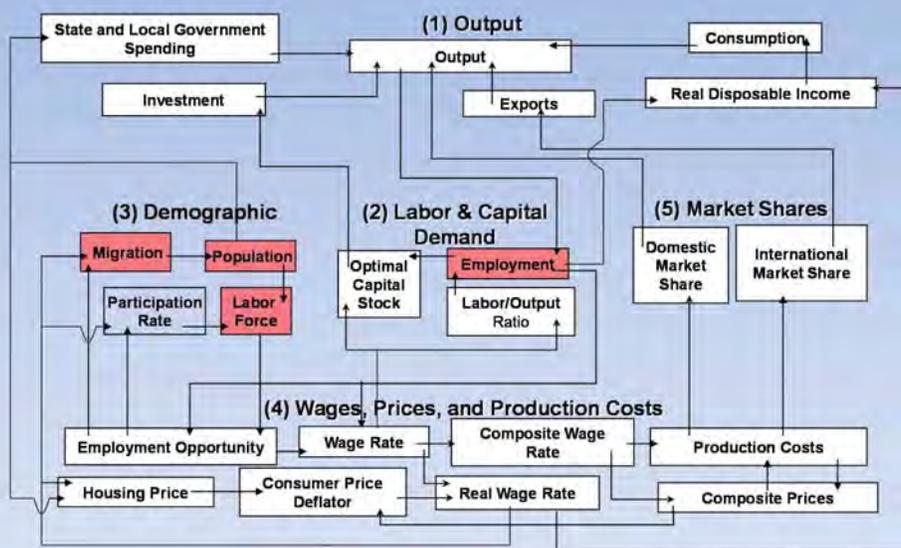
The Commission's REMI model was purchased in 2001 and is updated and rebuilt on an annual basis. National, state and local data are collected from a variety of sources and specifically calibrated for the Hampton Roads Region.

#### Major Data Sources Include:

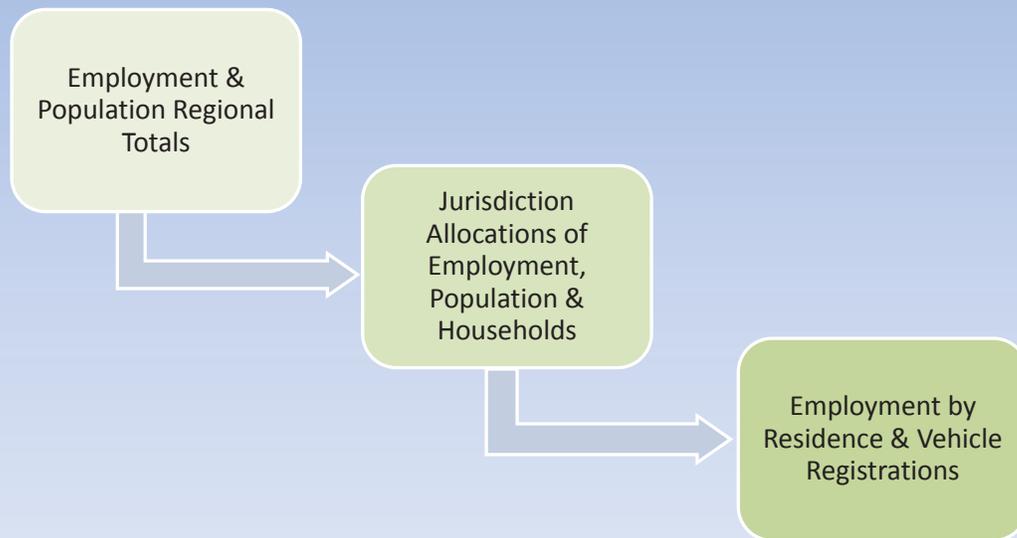
- Bureau of Economic Analysis
- Bureau of Labor Statistics
- Census
- Department of Defense
- Energy Information Administration
- Center for Disease Control
- County Business Patterns
- Research Seminar in Quantitative Economics



# REMI Model Structure



# Forecast Methodology



# Forecast Methodology

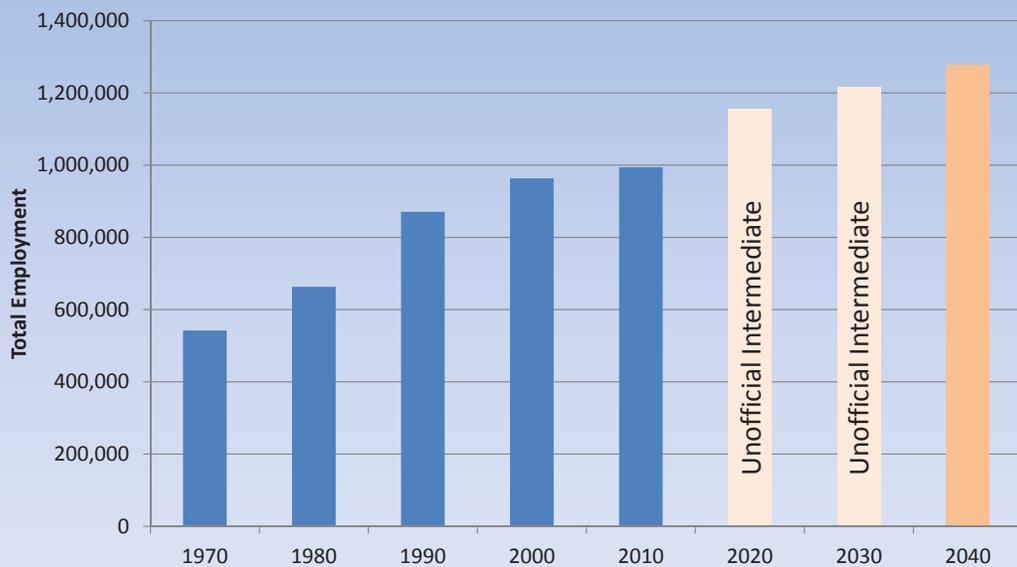
## Data Collection and Modeling

# ASSUMPTIONS

### uncertainty

- Employment trends
- Household trends
- Vehicles per household
- Population density
- Migration
- Labor force participation
- Commuting patterns
- Planning and zoning
- Federal, State, and Local Policy
- Gas prices
- Natural Increase
- Persons per household
- Land Availability
- Transportation Modes and Costs
- Retail Purchases
- Sea-level rise

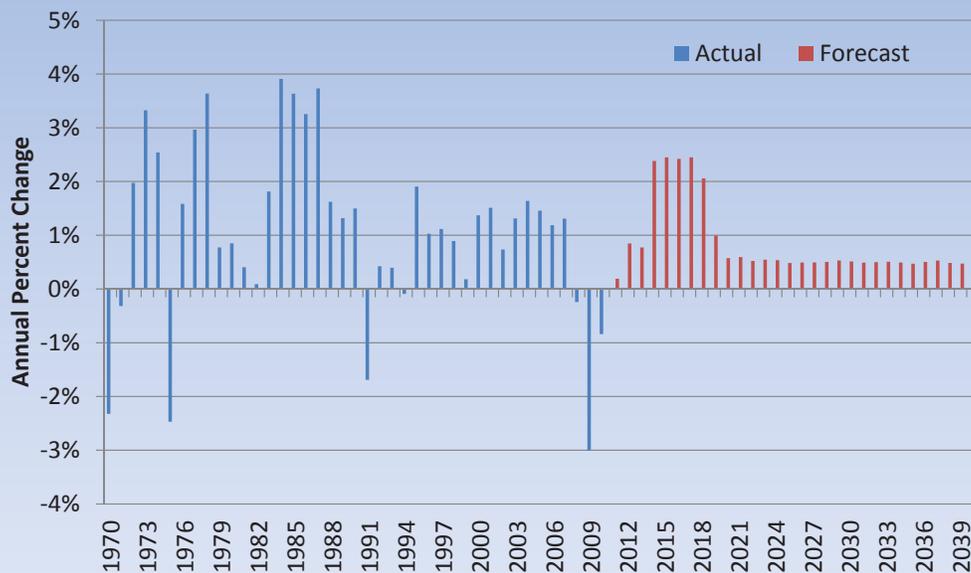
# Hampton Roads Employment Forecast



2040 Socioeconomic Forecast

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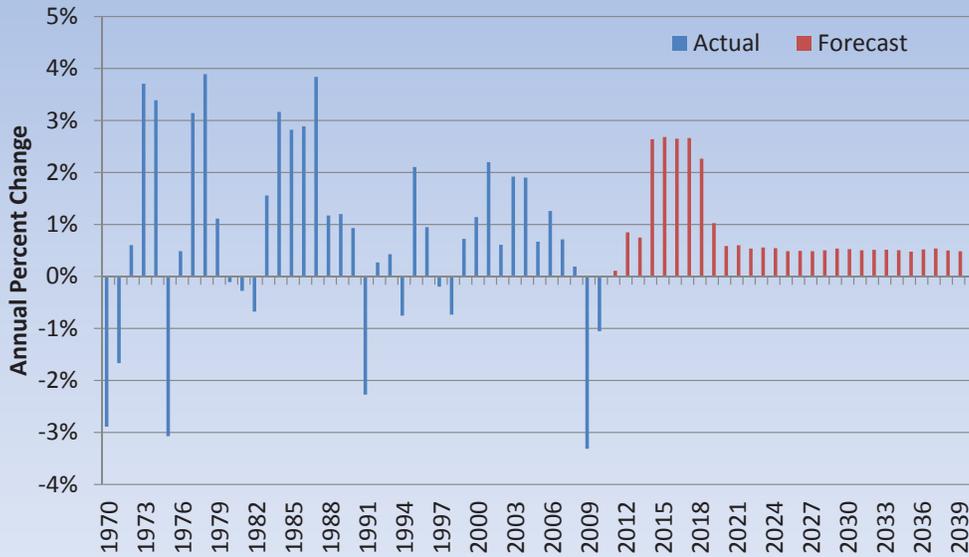
# Employment Growth in Hampton Roads



2040 Socioeconomic Forecast

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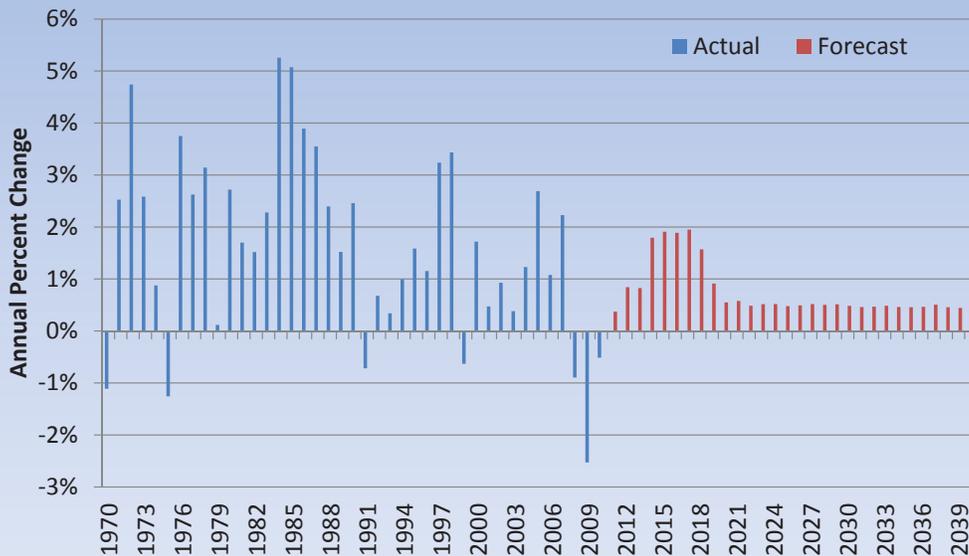
## Employment Growth in Southside Hampton Roads



2040 Socioeconomic Forecast

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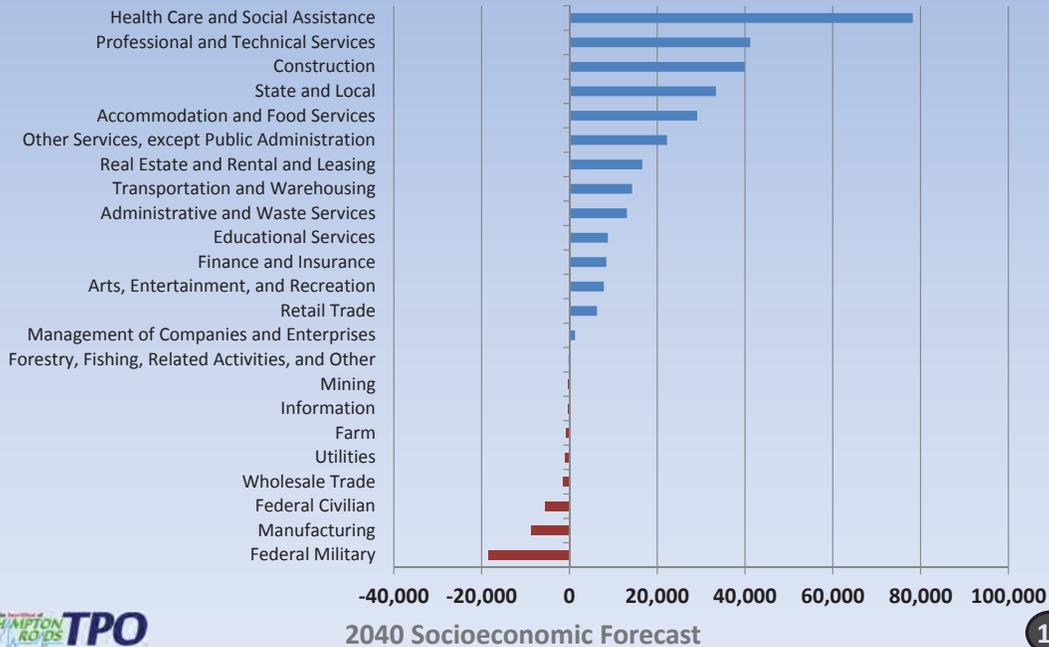
## Employment Growth on the Hampton Roads Peninsula



2040 Socioeconomic Forecast

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# Forecasted Change in Employment from 2010 through 2040



# Employment Breakdown

Source: VDOT – Hampton Roads Model Methodology Report

Industry Sector	2-Digit NAICS*	Retail	Office	Industrial	Other
Agriculture, Forestry and Fisheries	11			100%	
Mining	21			100%	
Construction	23		10%	90%	
Manufacturing	31,32,33		10%	80%	10%
Transportation	48		10%	80%	10%
Communications, Utilities	22	10%	10%	70%	10%
Wholesale Trade	42	40%	10%	20%	30%
Retail Trade	44,45	90%	10%		
Warehousing	49	10%	20%	20%	50%
Information	51		60%	10%	30%
Finance, Insurance, Real Estate	52,53,55		100%		
Administration & Support	56	30%	30%	10%	30%
Personal Services	72,81	40%	30%	10%	20%
Entertainment, Recreation	71	30%	10%		60%
Health Services	62	30%	30%	10%	30%
Educational Services	61		20%		80%
Other Professional and Related Services	54		90%		10%
Public Administration	92	10%	40%	20%	30%

\* North American Industrial Classification System



# Revised Employment Breakdown

Source: VDOT – Hampton Roads Model Methodology Report

Industry Sector	2-Digit NAICS*	Retail	Office	Industrial	Other
Agriculture, Forestry and Fisheries	11			100%	
Mining	21			100%	
Construction	23		10%	90%	
Manufacturing	31,32,33		10%	80%	10%
Transportation	48		10%	80%	10%
Transportation & Warehousing	48,49	5%	15%	50%	30%
Communications, Utilities	22	10%	10%	70%	10%
Wholesale Trade	42	40%	10%	20%	30%
Retail Trade	44,45	90%	10%		
Warehousing	49	10%	20%	20%	50%
Information	51		60%	10%	30%
Finance, Insurance, Real Estate	52,53,55		100%		
Administration & Support	56	30%	30%	10%	30%
Personal Services	72,81	40%	30%	10%	20%
Entertainment, Recreation	71	30%	10%		60%
Health Services	62	30%	30%	10%	30%
Educational Services	61		20%		80%
Other Professional and Related Services	54		90%		10%
Public Administration	92	10%	40%	20%	30%

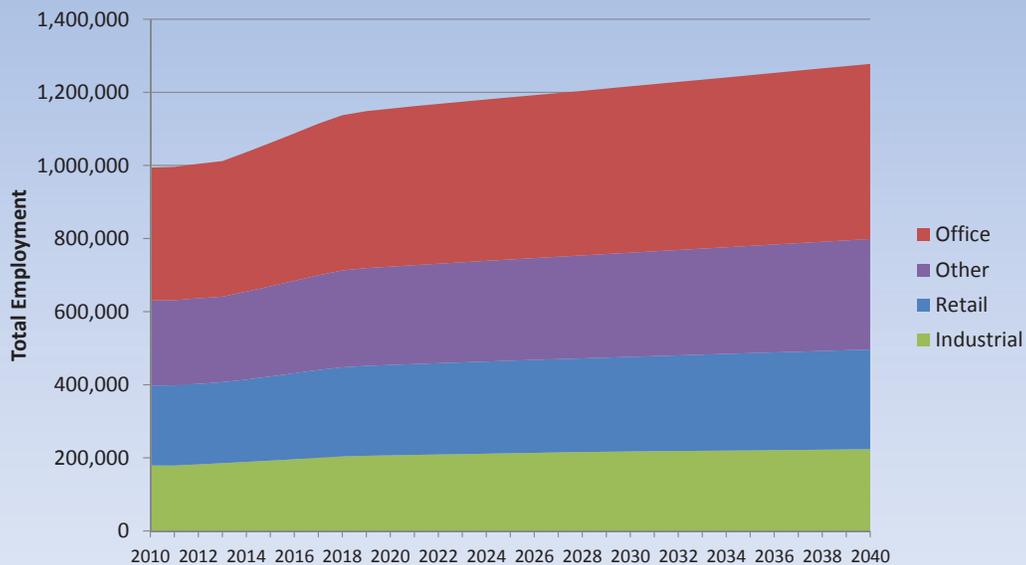
\* North American Industrial Classification System



2040 Socioeconomic Forecast

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# Hampton Roads Employment Projections by Sub-Group



2040 Socioeconomic Forecast

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## Draft Employment Totals in Hampton Roads

	1970	1980	1990	2000	2010	2020	2030	2040
Southside	388,716	472,753	614,446	673,958	693,844	814,500	858,300	902,300
Chesapeake	22,566	32,288	62,605	102,765	122,265	148,100	157,500	167,000
Franklin	3,397	4,091	4,685	5,560	6,182	7,500	8,000	8,500
Isle of Wight Co.	9,301	11,880	12,133	16,134	15,347	24,500	27,900	31,000
Norfolk	211,278	230,199	259,481	225,319	210,037	223,900	229,000	234,200
Portsmouth	48,087	53,996	58,979	52,831	57,414	64,800	67,500	70,400
Southampton Co.	6,124	5,927	5,461	6,026	5,454	8,600	9,600	10,700
Suffolk	18,055	19,692	20,660	26,273	33,914	51,000	57,100	62,900
Surry Co.	3,662	3,073	3,193	2,604	3,161	4,900	5,600	5,900
Virginia Beach	66,246	111,607	187,249	236,446	240,070	281,200	296,100	311,700
Peninsula	153,365	190,391	256,242	289,273	300,245	340,500	358,300	375,400
Gloucester Co.	3,493	6,468	9,700	13,002	14,421	16,400	17,400	18,200
Hampton	50,259	60,965	76,339	83,361	77,429	83,700	86,500	89,300
James City Co.	5,646	12,330	19,645	25,943	37,183	48,500	53,600	58,300
Newport News	75,753	85,370	110,589	115,678	115,265	123,000	126,400	129,700
Poquoson	999	1,611	2,160	2,674	2,870	3,200	3,400	3,610
Williamsburg	8,765	12,680	19,133	23,869	19,723	24,800	26,900	29,000
York Co.	8,450	10,967	18,676	24,746	33,354	40,900	44,100	47,290
Hampton Roads	542,081	663,144	870,688	963,231	994,089	1,155,000	1,216,600	1,277,700

unofficial intermediate estimates



2040 Socioeconomic Forecast

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## Draft Retail Employment in Hampton Roads

	2010	2020	2030	2040
Southside	151,657	172,900	181,700	191,500
Chesapeake	30,553	35,200	37,100	39,200
Franklin	2,320	2,600	2,700	2,900
Isle of Wight Co.	3,897	5,300	5,900	6,600
Norfolk	38,386	41,600	43,000	44,500
Portsmouth	11,343	12,600	13,100	13,700
Southampton Co.	752	1,100	1,200	1,400
Suffolk	8,152	10,600	11,600	12,700
Surry Co.	459	600	700	700
Virginia Beach	55,795	63,300	66,400	69,800
Peninsula	66,849	74,200	77,400	81,000
Gloucester Co.	3,992	4,600	4,900	5,100
Hampton	17,198	18,300	18,800	19,400
James City Co.	9,074	10,400	11,000	11,700
Newport News	22,960	24,900	25,700	26,600
Poquoson	662	700	700	720
Williamsburg	4,389	5,300	5,700	6,100
York Co.	8,574	10,000	10,600	11,380
Hampton Roads	218,506	247,100	259,100	272,500

unofficial intermediate estimates



2040 Socioeconomic Forecast

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## Draft Office Employment in Hampton Roads

	2010	2020	2030	2040
Southside	255,920	305,300	321,500	338,800
Chesapeake	42,468	53,300	56,900	60,700
Franklin	2,039	2,500	2,600	2,800
Isle of Wight Co.	5,010	7,100	7,800	8,600
Norfolk	78,702	85,600	87,900	90,300
Portsmouth	19,829	22,900	23,900	24,900
Southampton Co.	1,406	1,800	1,900	2,100
Suffolk	10,987	17,400	19,500	21,700
Surry Co.	753	1,000	1,100	1,200
Virginia Beach	94,726	113,700	119,900	126,500
Peninsula	107,645	126,500	133,300	140,200
Gloucester Co.	4,686	5,200	5,400	5,600
Hampton	27,906	30,900	32,000	33,100
James City Co.	16,445	21,900	23,900	25,800
Newport News	36,149	38,700	39,600	40,500
Poquoson	1,013	1,200	1,300	1,400
Williamsburg	8,360	11,500	12,600	13,800
York Co.	13,086	17,100	18,500	20,000
Hampton Roads	363,565	431,800	454,800	479,000

unofficial intermediate estimates



2040 Socioeconomic Forecast

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## Draft Industrial Employment in Hampton Roads

	2010	2020	2030	2040
Southside	122,520	145,300	153,000	157,700
Chesapeake	23,851	27,800	29,100	29,900
Franklin	755	900	1,000	1,000
Isle of Wight Co.	2,990	6,800	8,100	8,900
Norfolk	37,918	39,400	39,900	40,200
Portsmouth	11,884	12,700	13,000	13,200
Southampton Co.	2,048	3,900	4,500	4,900
Suffolk	7,173	12,200	13,900	14,900
Surry Co.	1,451	2,600	3,000	3,200
Virginia Beach	34,451	39,000	40,500	41,500
Peninsula	56,837	61,600	64,800	66,100
Gloucester Co.	2,834	3,300	3,600	3,700
Hampton	12,422	12,800	13,100	13,200
James City Co.	2,443	4,400	5,700	6,300
Newport News	31,461	32,400	33,000	33,200
Poquoson	628	600	600	640
Williamsburg	405	500	600	600
York Co.	6,643	7,600	8,200	8,460
Hampton Roads	179,357	206,900	217,800	223,800

unofficial intermediate estimates



2040 Socioeconomic Forecast

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## Draft "Other" Employment in Hampton Roads

	2010	2020	2030	2040
Southside	163,747	191,000	202,100	214,300
Chesapeake	25,394	31,800	34,400	37,200
Franklin	1,068	1,500	1,700	1,800
Isle of Wight Co.	3,449	5,300	6,100	6,900
Norfolk	55,031	57,300	58,200	59,200
Portsmouth	14,358	16,600	17,500	18,600
Southampton Co.	1,248	1,800	2,000	2,300
Suffolk	7,602	10,800	12,100	13,600
Surry Co.	498	700	800	800
Virginia Beach	55,099	65,200	69,300	73,900
Peninsula	68,914	78,200	82,800	88,100
Gloucester Co.	2,910	3,300	3,500	3,800
Hampton	19,902	21,700	22,600	23,600
James City Co.	9,221	11,800	13,000	14,500
Newport News	24,696	27,000	28,100	29,400
Poquoson	568	700	800	850
Williamsburg	6,568	7,500	8,000	8,500
York Co.	5,050	6,200	6,800	7,450
Hampton Roads	232,661	269,200	284,900	302,400

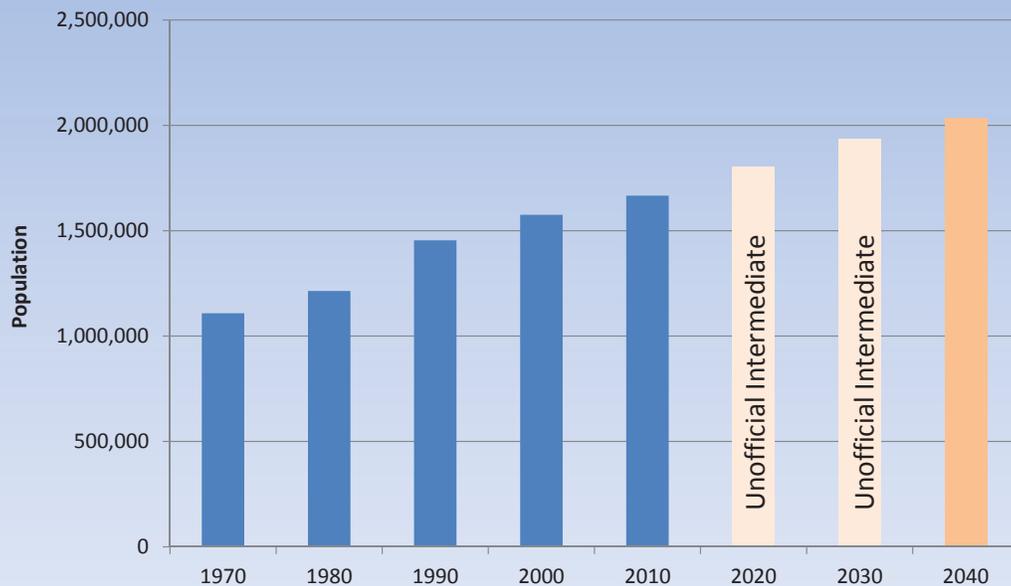
unofficial intermediate estimates



2040 Socioeconomic Forecast

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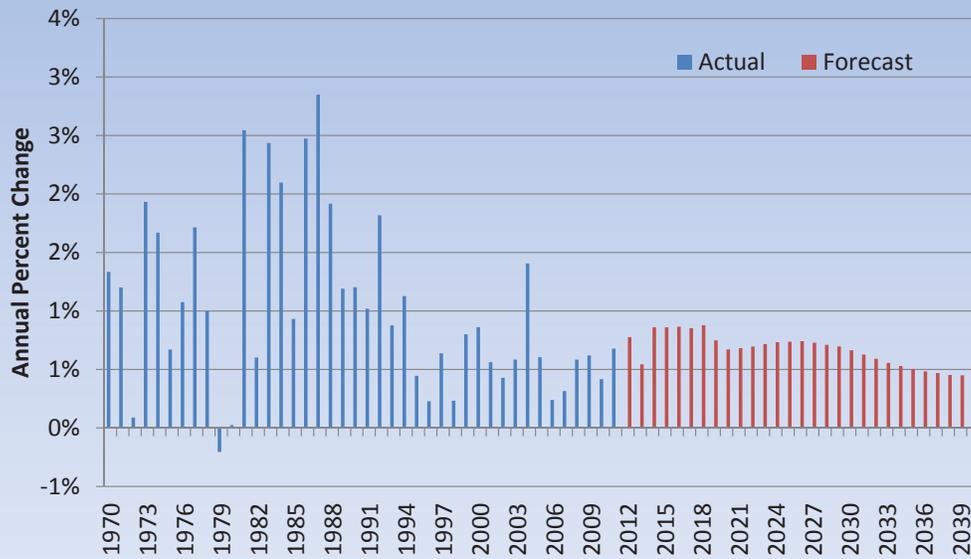
## Hampton Roads Population Forecast



2040 Socioeconomic Forecast

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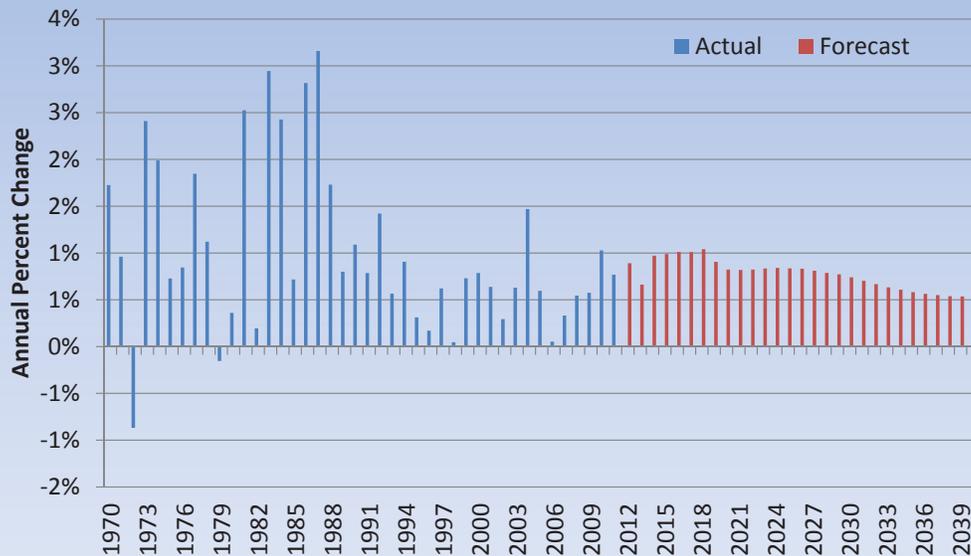
## Population Growth in Hampton Roads



2040 Socioeconomic Forecast

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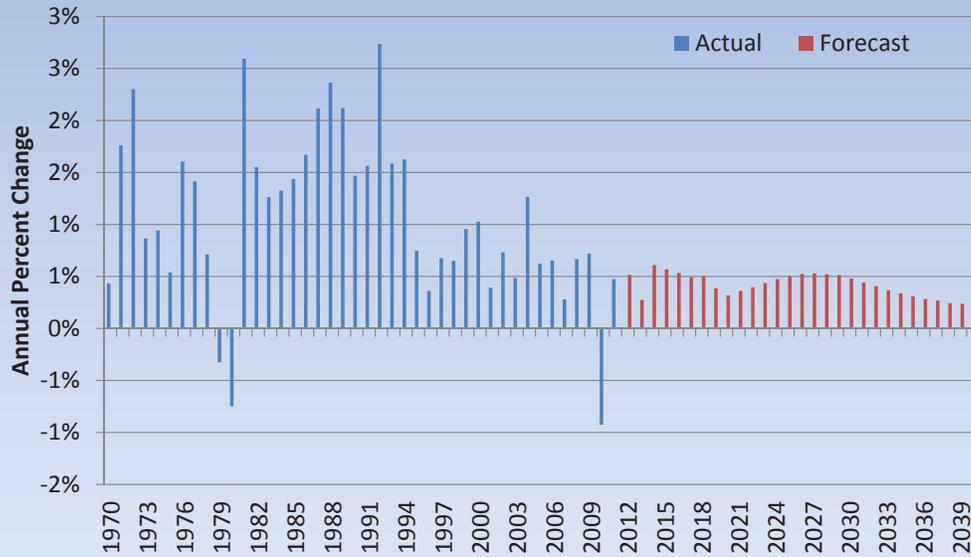
## Population Growth in Southside Hampton Roads



2040 Socioeconomic Forecast

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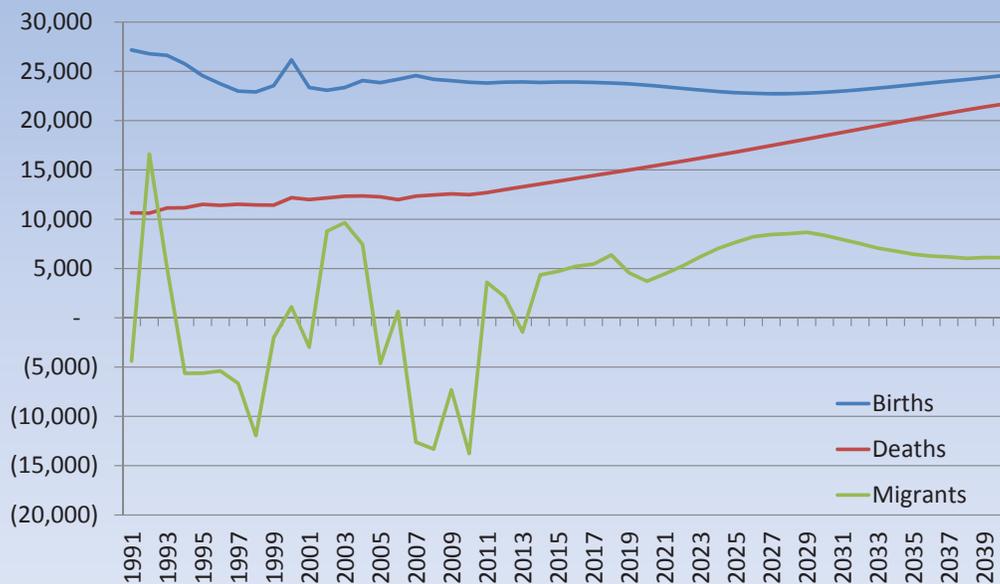
## Population Growth on the Hampton Roads Peninsula



2040 Socioeconomic Forecast

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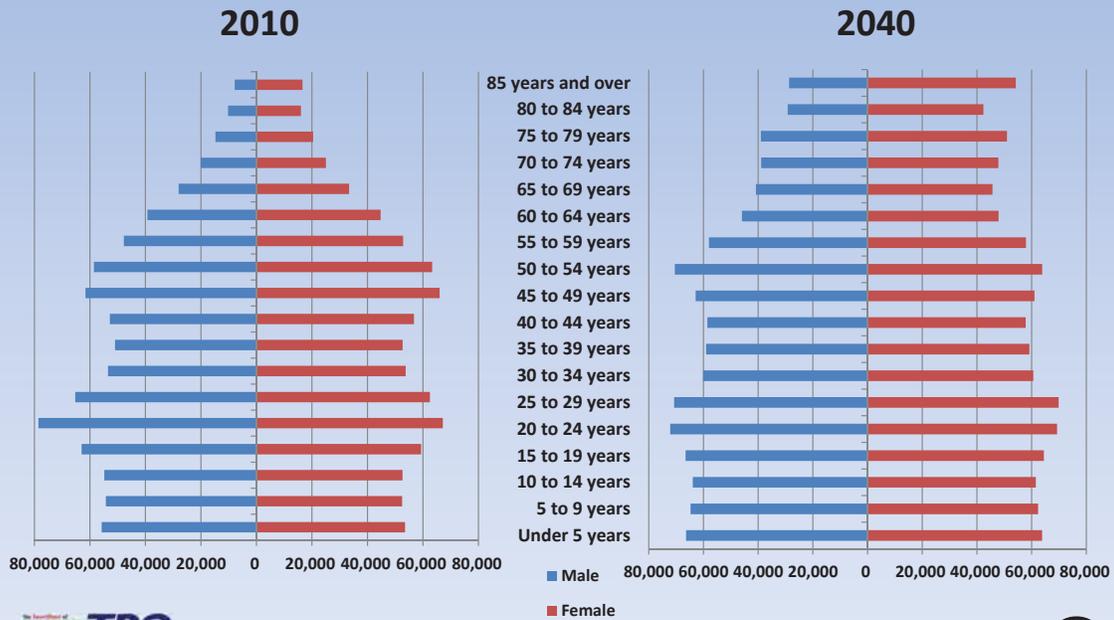
## Components of Population Change



2040 Socioeconomic Forecast

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# Hampton Roads Population Histograms



2040 Socioeconomic Forecast

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# Draft Population Totals in Hampton Roads

	1970	1980	1990	2000	2010	2020	2030	2040
Southside	775,253	849,550	1,018,986	1,085,471	1,152,606	1,263,900	1,371,000	1,454,000
Chesapeake	89,580	114,486	151,982	199,184	222,209	256,400	289,200	314,600
Franklin	6,880	7,308	7,864	8,346	8,582	9,400	10,200	10,800
Isle of Wight Co.	18,285	21,603	25,053	29,728	35,270	45,400	55,200	62,800
Norfolk	307,951	266,979	261,250	234,403	242,803	246,600	250,300	253,200
Portsmouth	110,963	104,577	103,910	100,565	95,535	96,500	97,500	98,200
Southampton Co.	18,582	18,731	17,550	17,482	18,570	21,100	23,600	25,500
Suffolk	45,024	47,621	52,143	63,677	84,585	120,800	155,700	182,700
Surry Co.	5,882	6,046	6,145	6,829	7,058	7,700	8,200	8,700
Virginia Beach	172,106	262,199	393,089	425,257	437,994	460,000	481,100	497,500
Peninsula	333,140	364,449	435,197	481,330	513,704	539,000	564,900	583,000
Gloucester Co.	14,059	20,107	30,131	34,780	36,858	38,100	39,300	40,200
Hampton	120,779	122,617	133,811	138,437	137,436	137,300	137,300	137,200
James City Co.	17,853	22,339	34,859	48,102	67,009	80,600	94,500	104,200
Newport News	138,177	144,903	171,439	180,150	180,719	183,800	186,900	189,100
Poquoson	5,441	8,726	11,005	11,566	12,150	12,200	12,300	12,400
Williamsburg	9,069	10,294	11,530	11,998	14,068	15,200	16,400	17,200
York Co.	27,762	35,463	42,422	56,297	65,464	71,800	78,200	82,700
Hampton Roads	1,108,393	1,213,999	1,454,183	1,566,801	1,666,310	1,802,900	1,935,900	2,037,000

denotes adjusted Census value

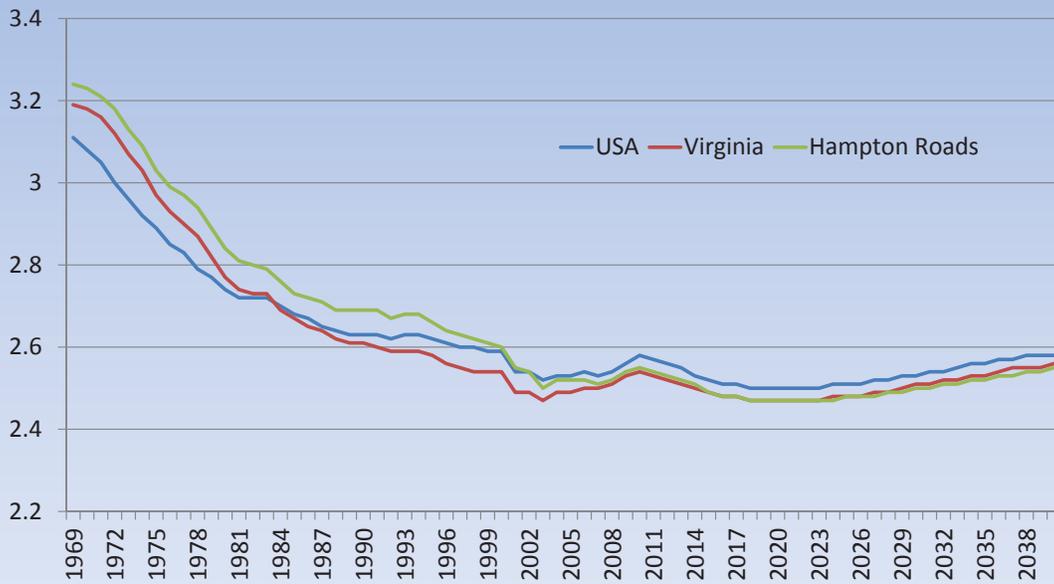
unofficial intermediate estimates



2040 Socioeconomic Forecast

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# Persons Per Household



2040 Socioeconomic Forecast

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# Draft Number of Households in Hampton Roads

	1970	1980	1990	2000	2010	2020	2030	2040
Southside	218,088	266,353	344,456	395,619	426,133	484,600	521,200	543,700
Chesapeake	25,178	36,362	52,024	69,900	79,574	95,400	106,500	114,300
Franklin	2,113	2,591	3,011	3,384	3,530	4,000	4,300	4,500
Isle of Wight Co.	5,028	7,050	9,031	11,319	13,718	18,400	22,200	24,700
Norfolk	86,607	74,955	79,518	86,210	86,485	91,000	91,800	91,500
Portsmouth	34,470	36,796	38,706	38,170	37,324	39,100	39,000	38,700
Southampton Co.	4,915	5,774	6,004	6,279	6,719	8,000	8,900	9,500
Suffolk	13,116	15,726	18,518	23,283	30,868	45,900	58,600	67,800
Surry Co.	1,576	2,002	2,279	2,619	2,826	3,200	3,400	3,500
Virginia Beach	45,085	85,097	135,365	154,455	165,089	179,600	186,500	189,200
Peninsula	92,909	124,178	159,724	183,488	199,950	217,500	226,100	229,500
Gloucester Co.	4,431	7,159	10,957	13,127	14,293	15,300	15,600	15,700
Hampton	34,564	41,550	49,680	53,887	55,031	57,000	56,500	55,500
James City Co.	4,551	7,493	12,990	19,003	26,860	33,500	39,000	42,300
Newport News	39,586	51,310	64,420	69,686	70,664	74,400	75,100	74,700
Poquoson	NA	2,763	3,763	4,166	4,525	4,700	4,700	4,700
Williamsburg	2,396	3,024	3,462	3,619	4,571	5,300	5,800	6,000
York Co.	7,381	10,879	14,452	20,000	24,006	27,300	29,400	30,600
Hampton Roads	310,997	390,531	504,180	579,107	626,083	702,100	747,300	773,200

unofficial intermediate estimates



2040 Socioeconomic Forecast

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## Draft Totals for Workers by Place of Residence

	1980	1990	2000	2010	2020	2030	2040
Southside	387,154	511,022	531,417	579,237	624,700	668,400	702,200
Chesapeake	48,649	75,610	96,977	110,539	125,600	140,100	151,300
Franklin	2,732	3,272	3,337	3,078	3,300	3,500	3,700
Isle of Wight Co.	9,299	11,637	13,986	17,380	22,000	26,500	29,900
Norfolk	127,689	130,549	112,083	121,083	121,400	121,700	122,000
Portsmouth	41,576	44,390	43,922	44,871	44,800	44,700	44,600
Southampton Co.	7,065	7,255	6,945	8,445	9,500	10,500	11,200
Suffolk	19,100	22,255	28,372	39,012	54,700	69,800	81,400
Surry Co.	2,382	2,622	3,147	3,217	3,400	3,600	3,800
Virginia Beach	128,662	213,432	222,648	231,612	240,000	248,000	254,300
Peninsula	165,816	212,763	229,790	250,121	262,000	274,100	282,500
Gloucester Co.	8,447	14,387	16,952	18,003	18,600	19,200	19,600
Hampton	54,862	66,008	66,101	66,680	66,600	66,600	66,500
James City Co.	10,133	17,692	21,922	30,264	36,400	42,700	47,000
Newport News	67,023	82,662	86,282	90,519	92,100	93,600	94,700
Poquoson	4,015	5,700	5,658	5,917	5,900	5,900	6,000
Williamsburg	4,366	4,894	4,239	5,705	6,200	6,700	7,000
York Co.	16,970	21,420	28,636	33,033	36,200	39,400	41,700
Hampton Roads	552,970	723,785	761,207	829,358	886,700	942,500	984,700

unofficial intermediate estimates



2040 Socioeconomic Forecast

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## Draft Number of Vehicles in Hampton Roads

	1970	1980	1990	2000	2010	2020	2030	2040
Southside	231,316	425,239	613,064	762,371	864,362	1,004,100	1,099,000	1,163,000
Chesapeake	31,108	62,967	101,571	148,000	176,139	211,200	235,700	252,600
Franklin	1,036	4,341	4,967	5,775	6,368	7,600	8,500	9,300
Isle of Wight Co.	5,736	12,410	19,248	26,062	33,625	45,100	54,400	60,500
Norfolk	86,358	114,263	129,858	144,024	153,058	170,200	180,800	189,400
Portsmouth	35,828	50,267	59,563	63,153	66,352	73,300	76,900	80,100
Southampton Co.	5,173	9,414	11,879	14,034	16,439	19,600	21,800	23,300
Suffolk	4,452	24,710	33,816	48,661	67,091	99,800	127,400	147,100
Surry Co.	1,723	3,599	5,102	6,283	7,370	8,300	8,900	9,100
Virginia Beach	59,902	143,268	247,060	306,379	337,920	369,000	384,600	391,600
Peninsula	110,481	192,989	279,223	357,595	412,325	455,000	479,600	493,600
Gloucester Co.	5,065	12,621	23,125	30,378	35,818	38,300	39,100	39,400
Hampton	42,797	66,132	87,366	97,982	104,189	111,300	113,600	114,900
James City Co.	3,958	11,319	22,776	37,423	52,673	66,900	79,300	87,600
Newport News	44,434	73,756	98,570	127,726	141,874	150,900	153,900	154,600
Poquoson	NA	5,272	8,470	10,031	11,336	11,800	11,800	11,800
Williamsburg	4,144	6,531	9,910	9,957	13,018	15,100	16,500	17,100
York Co.	10,083	17,358	29,006	44,098	53,417	60,700	65,400	68,200
Hampton Roads	341,797	618,228	892,287	1,119,966	1,276,687	1,459,100	1,578,600	1,656,600

unofficial intermediate estimates



2040 Socioeconomic Forecast

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# Weldon Cooper Center vs. LRTP Population Forecast

Draft Population Totals for Hampton Roads

	2010	2040	2040
Southside	1,152,606	1,454,000	1,312,465
Chesapeake	222,209	314,600	318,488
Franklin	8,582	10,800	10,661
Isle of Wight Co.	35,270	62,800	44,922
Norfolk	242,803	253,200	260,689
Portsmouth	95,535	98,200	99,916
Southampton Co.	18,570	25,500	18,412
Suffolk	84,585	182,700	132,187
Surry Co.	7,058	8,700	8,086
Virginia Beach	437,994	497,500	419,103
Peninsula	513,704	583,000	647,510
Gloucester Co.	36,858	40,200	45,222
Hampton	137,436	137,200	139,663
James City Co.	67,009	104,200	136,736
Newport News	180,719	189,100	193,838
Poquoson	12,150	12,400	16,604
Williamsburg	14,068	17,200	17,820
York Co.	65,464	82,700	97,627
Hampton Roads	1,666,310	2,037,000	1,959,974

LRTP Estimates    WCC Estimates



2040 Socioeconomic Forecast

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## Next Steps

- Draft totals presented to TTAC for approval on 11-7-12 (approved)
- Draft totals presented to HRTPO for approval on 11-15-12



2040 Socioeconomic Forecast

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# Water Supply Assessment and Emergency Response Training

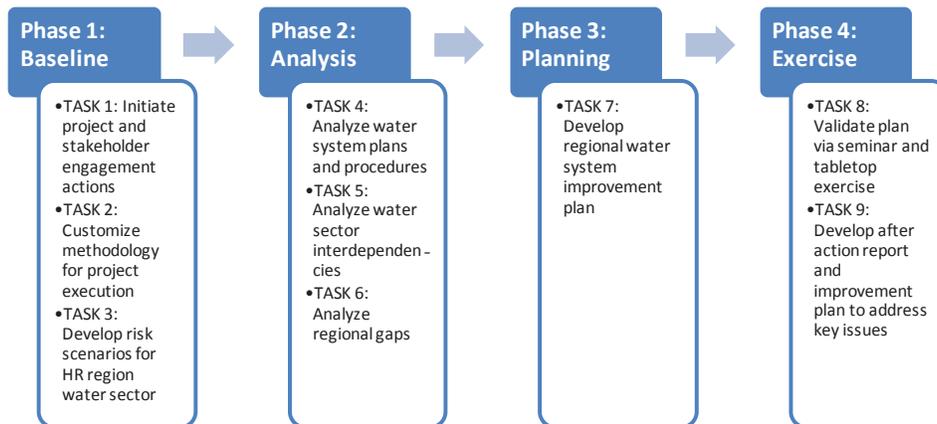
Improvement Plan Initiatives:  
 Discussion with the Directors of Utilities Committee  
 7 November 2012  
 Mr Matt Branigan



CH2MHILL



## OUR APPROACH



Successful execution across all phases demands our unique blend of skills and expertise:

*Security Operations | Risk Analysis | Engineering | Water Sector  
 Homeland Security Policy | Emergency Management | Exercise Design | Project Management*



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## Objectives

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- Better prepare utilities across the region to individually respond to and recover from hazards or disruptions
- Improve the ability of the utilities within the region to coordinate with each other and with relevant stakeholders within their jurisdictions
- Foster stronger relationships and increase information sharing
- Identify best practices and develop mechanisms for information sharing across the region



3

## Strategies

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- Five “strategies” for increased readiness
  - Improve planning, training, and exercises
  - Enhance response and recovery capabilities
  - Enhance communications, coordination, and information sharing
  - Leverage scientific advances in weather prediction, impact prediction, and water testing
  - Enhance water supply infrastructure and interconnections



4

## Initiatives

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- Current “draft” improvement plan has 21 initiatives
  - Regional Initiatives: For regional implementation
  - Utility Initiatives: Can be completed by individual utilities
  - Contributing Initiatives: Completed by individual utilities yet also contribute to regional solutions
- Draft initiatives tested/validated in May tabletop exercise



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## Strategy 1 Initiatives

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### Strategy 1: Improve Planning, Training, and Exercises

- Initiative 1A – Planning Toolbox
  - Develop a “planning toolbox” for regional preparedness guidance (templates, SOPs, and decision aids) to assist in emergency response and recovery and encourage the sharing of best practices.
- Initiative 1B – Regional Training Program
  - Develop a regional training program to provide a consistent framework for emergency response and NIMS-related concepts and coordinate training opportunities.
- Initiative 1C – Regional Exercise Program
  - Develop a regional exercise program to test and evaluate emergency management procedures in a unified framework; examine evacuation triggers and coordination with multiple sectors.
- Initiative 1D – Continuity of Operations Planning (COOP)
  - Develop COOP regional guidance that utilities may customize for individual requirements and risks.



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## Strategy 2 Initiatives

### Strategy 2: Enhance Response and Recovery Capabilities

- Initiative 2A – Enhance Shelter-in-Place Capability
  - Assess the requirements for ride-out or evacuation in advance of catastrophic incidents; identify needs for sheltering facilities, remote operations, and evacuation and reconstitution.
- Initiative 2B – Regional Resources and Supply Chain Assessment
  - Assess resources and contracts for disaster response services and the supply chain for equipment, chemicals, fuels, and other materials; assess potential for problems due to transportation disruptions.
- Initiative 2C – Enhance Crisis Planning with Power Suppliers
  - Enhance the relationship between the Water Sector and electricity providers for crisis planning.
- Initiative 2D – Regional Personnel Badging Program
  - Implement a consistent identification system to ensure utility access to incident response/recovery sites
- Initiative 2E – Back-up Fire Suppression Capabilities
  - Investigate back-up fire suppression capabilities for large-scale emergencies/extended periods without water service; identify water sources for accessibility and candidate sites for installation of dry hydrants.



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## Strategy 3 Initiatives

### Strategy 3: Enhance Communications, Coordination, and Information Sharing

- Initiative 3A – Inter-utility “Common Operating Picture”
  - Develop a “common operating picture” to facilitate information sharing between utilities during an emergency using a water sector WebEOC board or similar tool.
- Initiative 3B – Networking with Key Disaster Response Partners
  - Network with key disaster response partners and develop guidance for use of accessible, low cost tools for pre-incident and post-disaster information sharing.
- Initiative 3C – Disaster Messaging to Customers
  - Improve coordination of disaster messaging to utility customers; evaluate how information is disseminated, identify conflicts and sources of confusion, create needed protocols.
- Initiative 3D – Evaluate Multi-Agency Coordination System
  - Develop a regional water and wastewater Multi-Agency Coordination System (MACS) to set incident priorities, allocate resources, and make coordinated decisions for specific emergencies.
- Initiative 3E – Enhanced/Redundant Communications Capability
  - Explore innovative methods to transmit/receive critical response and coordination information in a crisis; assess potential upgrades to communications technology and voluntary cooperative strategies.



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## Strategy 4 Initiatives

### Strategy 4: Leverage Scientific Advances in Weather Prediction, Impact Prediction, and Water Testing

- Initiative 4A – Tools to Enhance Predictive Capabilities
  - Assess regional practices and emerging tools to advance predictive capabilities for severe weather events and resultant impacts; identify specific data needs and tools to characterize changing conditions.
- Initiative 4B – Tools to Support Real-Time Data Synthesis
  - Improve the synthesis of real-time weather data for more accurate assessment of storm conditions to ensure personnel safety and to support decision-making on deployment of resources.
- Initiative 4C – Tools to Improve Contamination Detection
  - Evaluate contaminant warning systems and applicability to monitoring needed for the detection of contaminants during response and recovery efforts from hurricanes, flooding, and contamination of water sources by accidental or intentional acts.
- Initiative 4D – Water Quality Response Program
  - Update the Hampton Roads Water Quality Response Plan and inventory available laboratory testing services, including the regional Rapid Toxicity Testing Program; re-educate stakeholders on the plan and provide for compatibility with NIMS, changes in agency organization, and technological advances.



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## Strategy 5 Initiatives

### Strategy 5: Enhance Water Supply Infrastructure and Interconnections

- Initiative 5A – Infrastructure Grant Funding
  - Identify grants to support the enhancement of infrastructure and overall improvement of system resiliency.
- Initiative 5B – Drought Response Actions
  - Investigate drought response actions to improve supply-side capabilities to respond to drought by providing alternative water sources or water delivery.
- Initiative 5C – Utility and Transportation Flood Mitigation
  - Assess needs for flood mitigation of evacuation routes and other roadways that traverse reservoirs, dams or impoundment structures; identify structural improvements to roadways or impoundments to reduce flood risk.



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## A Way Forward on Initiatives: Directors' View

- Regional Initiatives: Highest Support
  - 1A Planning Toolbox
  - 3A Inter-utility common operating picture
- Utility Initiatives: Highest Support
  - 1D Continuity of Operations Planning
  - 5A Infrastructure Grant Funding
  - 2A Enhance Shelter in Place Capability
- Contributing Initiative Recommendation:
  - 3B Networking with Key Disaster Response Partners



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## A Way Forward on Initiatives: Study Team's View

- Regional Initiative Recommendations:
  - 1A Planning Toolbox
  - 1B Regional Training Program
  - 3E Enhanced/Redundant Communications Capability
  - 3A Inter-Utility Common Operating Picture
- Utility Initiative Recommendations:
  - 1D Continuity of Operations Planning
  - 2A Enhance Shelter-in-Place Capability/Funding
  - 2C Enhance Crisis Planning with Power Suppliers
- Contributing Initiative Recommendation:
  - 3B Networking with Key Disaster Response Partners



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## Project Close-out

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- Final edits to the improvement plan
  - HRPDC/DUC currently in draft review phase
    - Review due project team by 23 Nov
  - Final plan submitted to HRPDC NLT 1 Dec
  - Acceptance of Improvement Plan by HRPDC leadership
  - Acceptance of Improvement Plan by Directors of Utilities
- Prioritization of initiatives by the Directors
  - Coordinated by HRPDC staff
- As applicable:
  - Internal utility tasking by Directors
  - Tasking to HRPDC staff for additional assistance or coordination
  - Agreement(s) between Directors on inter-utility cooperative measures



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Thanks for the opportunity to work  
with you in your region and to add to  
your increased readiness!!



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# TEAM WATERMARK



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## Regional Initiative Recommendations

Initiative	After Action Report Recommendation (if applicable)	Estimated Requirements
<b>1A Planning Toolbox.</b> Develop a “planning toolbox” for regional preparedness guidance (templates, SOPs, decision aids) to assist in emergency response and recovery and encourage the sharing of best practices.	Establish a Water Sector operations-level working group to identify and plan for events with regional impact.  Coordinate a joint briefing by state and federal disaster preparedness/response entities on capabilities, plans, resources, procedures, and gaps.	Cost: \$75-\$104K
		Performance Period: 4-6 months
<b>1B Regional Training Program.</b> Develop a regional training program to provide a consistent framework for emergency response and NIMS-related concepts and coordinate training opportunities.		Cost: \$50K for program design \$15K for annual TEP&W
		Performance Period: 4-6 months



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## Regional Initiative Recommendations (con't)

Initiative	After Action Report Recommendation (if applicable)	Estimated Requirements
<b>3E Enhanced / Redundant Communications Capability.</b> Explore innovative methods to transmit/receive critical response and coordination information in a crisis; assess potential upgrades to communications technology and voluntary cooperative strategies.	Consider additional methods to develop back-up voice and data communications capability, to include using ham radio operators for redundant communications.	Cost: \$0 (staff time)
		Performance Period: 4-6 months for needs assessment
<b>3A Inter-Utility Common Operating Picture.</b> Develop a “common operating picture” to facilitate information sharing between utilities during an emergency using a water sector WebEOC board or similar tool.	Develop WebEOC boards to collect and share information within the jurisdiction and then across the region as appropriate.	Cost: \$0 (staff time)
		Performance Period: 3-5 months



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## Utility Initiative Recommendations

Initiative	After Action Report Recommendation (if applicable)	Estimated Requirements
<b>1D Continuity of Operations (COOP) Planning.</b> Develop COOP regional guidance that utilities may customize for individual requirements and risks.	Coordinate with stakeholders to develop COOP plan; build upon current succession planning efforts.	Cost: \$75 - \$100K
		Performance Period: 4-6 months
<b>2C Enhance Crisis Planning with Power Suppliers.</b> Enhance the relationship between the Water Sector and electricity providers for crisis planning.		Cost: \$0 (staff time)
		Performance Period: Ongoing



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## Contributing Initiative Recommendation

<p><b>3B Networking with Key Disaster Response Partners.</b> Network with key disaster response partners and develop guidance for use of accessible, low cost tools for pre-incident and post-disaster information sharing.</p>	<p>Monitor VA WARN, WaterISAC, HSIN-CS, and other information sharing tools. Utilize Virginia Fusion Center training and information; foster a working relationship.</p>	<p>Cost: \$0 (staff time)</p>
		<p>Performance Period: Ongoing</p>



**Attachment 2A  
MEETING SUMMARY  
JOINT MEETING OF  
DIRECTORS OF UTILITIES COMMITTEE  
DIRECTORS OF HEALTH  
June 6, 2012  
Chesapeake**

**1. Summary of the May 2, 2012 Meetings of the Directors of Utilities Committee**

The following correction was made under item 5, Staff Reports (deletion indicated by strikethrough text; addition indicated by bracketed text):

- **Groundwater Reuse [Recharge] Technical Advisory Committee (TAC):** HRPDC staff provided a presentation summarizing the key issues being considered by the groundwater reuse technical advisory committee (TAC). The TAC is a precursor to the initiation of any regulatory process and regulatory advisory committee.

**ACTION:** The summary of the May 2, 2012 meeting of the Directors of Utilities Committee meeting was approved as corrected.

**2. Summary of December 7, 2011 Joint Meeting of the Directors of Utilities Committee and Directors of Health**

There were no comments on, or revisions to the summary of the December 7, 2012 meeting.

**ACTION:** The summary of the December 7, 2012 joint meeting of the Directors of Utilities Committee and Directors of Health was approved.

**3. Uranium Mining Study Results**

Mr. Tom Leahy, City of Virginia Beach Public Utilities Director, briefed the Committee on the findings of the City's February 2012 report, *Potential Impacts of Uranium Mining in Virginia on Drinking Water Sources, Phase II Assessment* (see [http://www.vbgov.com/government/departments/public-utilities/Documents/20120210-PUT-Uranium-Mining-Project\\_PhaseII\\_FinalReport.pdf](http://www.vbgov.com/government/departments/public-utilities/Documents/20120210-PUT-Uranium-Mining-Project_PhaseII_FinalReport.pdf)). A copy of the presentation is attached. A similar briefing was also presented by Mr. Leahy to the Virginia Beach City Council on June 5, 2012.

Mr. Leahy summarized the proposed mining activity and location; the hydrologic setting and climate issues; the findings of two economic studies, the National Academy of Sciences (NAS) study, and the Virginia Beach modeling study; and the City's position opposing uranium mining. Mr. Leahy noted the differences between the original and the

current mining proposal and emphasized the point made to the Virginia Beach City Council: Virginia Uranium is not bound by any plan, and mining economics, the price of uranium, and regulations at the time will dictate the alternative pursued by the company. Mr. Leahy reviewed the model assumptions in the City's study, then played video clips showing different model simulations of the movement of pollutant plumes in the water column in Kerr Lake and Lake Gaston after tailings were discharged to the Bannister River. Simulations were run over multi-year wet and dry periods following the release. The Committee discussion is summarized as follows:

- The federal Nuclear Regulatory Commission (NRC) is the agency that administers regulatory requirements for containment cells and disposal sites; the NAS study notes that the NRC has no experience implementing the regulations in areas like Virginia that are subject to wet climates and high precipitation events.
- Although Virginia Uranium is proposing below-grade tailings disposal, past studies indicate that below-grade disposal is infeasible due to shallow groundwater and groundwater flow.
- In an event that contaminated water is introduced into the Hampton Roads water supply via the Lake Gaston pipeline to Norfolk's reservoir, water utilities would be required to advise customers, however, VDH regulations do not prohibit use as long as the water is treated to safe drinking standards. The VDH Office of Drinking Water, VDH Epidemiology, DEQ, other agencies, and the Governor's office would need to develop a state response effort for such an event. Some discussions with VDH, DEQ, and the Attorney General's Office have already occurred, and a subsequent report was sent to the Governor's office.
- Clean Water Act issues would be at the forefront in the event of a release. Given the anticipated political and public reaction, any technical information provided by utilities assuring the safety of the regional water supply would likely be overwhelmed by negative public perception. A study currently being completed indicates that any contaminants introduced into Norfolk's reservoir system would likely be diluted to within water quality standards, and the water treatment plant process would further remove contamination.
- If a tailing release occurs, it is anticipated that the City of Virginia Beach would have to shut down the City's intake, as pumping would cause the pollutant plume to move up into the tributary creek where the intake is located. Also, even if pumping were to continue, the City does not have NPDES permits to discharge materials like uranium, thorium, and radium to the reservoir.
- The Governor's Task Force is working on a state regulatory framework for uranium mining, and it is expected that the issue will come up again for General Assembly vote in 2013.

There was no formal action on this item by the Committee. A recommendation was made to the Virginia Beach City Council on June 5, 2012 to update and reaffirm its opposition to uranium mining in Virginia, and Council is expected to adopt a formal resolution stating as such on June 12, 2012. The City is likely to ask other Hampton Roads localities to do the same.

**ACTION:** No action.

#### **4. Regulatory Update**

Mr. Dan Horne, Virginia Department of Health (VDH), Office of Drinking Water (ODW), advised the Committee of recent VDH staffing changes. Regarding regulations, he noted that VDH has full primacy for the Safe Drinking Water Act as of April 26, 2012. Regarding the Long Term 2 Enhanced Surface Water Treatment Rule for control of microbial pathogens, Mr. Horne summarized issues discussed at 2011 and 2012 EPA-hosted stakeholder meetings, which included monitoring requirements for *Cryptosporidium* and enforcement actions for uncovered finished water reservoirs. He noted that utilities should anticipate the announcement of a third stakeholder meeting regarding revisions to the bin classifications.

Mr. Horne also presented a summary of the final Unregulated Contaminant Monitoring Rule 3 (UCMR 3), including EPA's implementation of the rule and issues regarding the detection and analysis of hexavalent chromium and the expansion of monitoring requirements to include consecutive systems. A copy of his presentation is attached. Mr. Horne reviewed the development of UCMR 1, 2, and 3, and noted that UCMR 3 is an EPA "direct-implement" rule and that VDH's role will be very limited. The Final Rule was published on May 2, 2012 and EPA has begun contacting waterworks regarding implementation. As UCMR 3 includes hexavalent chromium, Mr. Horne provided a summary of the issues related to monitoring, including the lack of understanding of the chromium 3 - chromium 6 relationship and species removal, concerns regarding the analytical methods, and inconsistencies in lab performance and technology.

During Committee discussion, it was noted that some utilities have been receiving customer inquiries regarding chloramines and chloramine by-products. Although the opinion in circulation is that chloramines cause health problems, there is no supporting evidence. At this point, the EPA and Virginia are not changing regulations. It appears that the chloramine inquiries and complaints come from the same segment of the population that has expressed concerns over fluoride. There was no formal action on this item.

**ACTION:** No action.

## 5. Sanitary Sewer System Asset Consolidation Study

The initial steering committee meeting for the Sanitary Sewer System Asset Consolidation Study was held on May 7, 2012. HRSD met with EPA on May 14, 2012 regarding the federal Consent Decree. Mr. Ted Henifin, HRSD, summarized the meetings, noting that EPA was generally receptive to the idea of the consolidation study. HRSD sent EPA follow-up correspondence detailing the proposed study and schedule. With respect to the RFP, the May 30, 2012 pre-proposal conference was well attended, and the steering committee is developing proposal evaluation criteria and will participate in the selection process. There was no formal action on this item.

**ACTION:** No action.

## 6. Staff Reports

Staff Reports are summarized below:

- **Fats, Oils, and Grease (FOG) Ordinances:** The May 2012 updates provided by utilities regarding the status of FOG ordinance adoption are summarized and provided to the Committee as agenda Attachment 6A.
- **June 14, 2012 Directors of Utilities Committee Special Meeting:** HRPDC staff is preparing materials to support the work program discussion and will distribute materials prior to the meeting.
- **Hampton Roads Water Quality Response Plan:** HRPDC is compiling the 2012 update of the emergency contact list. Responses from utilities were requested by June 15, 2012. The updated list will be distributed to the Committee upon completion.
- **UASI Water Supply Assessment and Emergency Response Training Project:** HRPDC Staff thanked the Committee for participating in the May 23-24, 2012 table top training exercises for the Urban Areas Security Initiative (UASI) Water Supply Assessment and Emergency Response Training project and summarized the next steps in the water sector assessment project, including a planned briefing from the Virginia Fusion Center at the September 5, 2012 Committee meeting.

**ACTION:** No action.

## 7. Roundtable Discussion

The roundtable portion of the meeting is summarized below:

- It was agreed that the effectiveness and objectives of the Hampton Roads Water Quality Response Plan will be discussed at the December 5, 2012 joint meeting of the Directors of Utilities Committee and Health Directors.
- In response to a question regarding obtaining a list of restaurant facilities, HRPDC staff was directed by VDH representatives to contact the VDH Office of Environmental Health Services to request relevant information from the VENIS permitted facilities database.

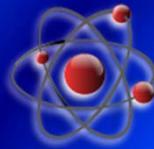
**ACTION:** No action.

Committee Meeting Sign-In Sheet  
June 6, 2012

Attachment 2B

Locality/Agency	Representative	Representative	Representative	Representative
HRSD	Ted Henifin			
Chesapeake	Bill Meyer			
Franklin				
Gloucester	Martin Schlesinger			
Hampton	Tony Reyes	Jason Mitchell		
Isle of Wight	Frank Haltom			
James City County	Larry Foster			
Newport News	Brian Ramaley			
Newport News	Steve Land			
Norfolk	Kristen Lentz			
Poquoson	Ellen Roberts	Bob Speechley		
Portsmouth	Bryan Foster			
Smithfield				
Southampton				
Suffolk	Craig Ziesemer			
Surry				
Virginia Beach	Tom Leahy	Bob Montague		
Williamsburg				
Windsor				
York				
HRPDC	John Carlock	Julia Hillegass	Tiffany Smith	
HRPDC				
New Kent				
DEQ				
EPA				
USGS				
VDH	Bill Berg	David Chang	Jay Duell	David Fridley
VDH	Ana Colon	Dan Horne	Amy Pemberton	
AECOM				
AquaLaw				
Brown & Caldwell				
CH2M-Hill				
Christian Barton				
CNA				
Hurt & Proffitt, Inc.				
McGuire Woods				
REMSA				
Troutman Sanders				
Virginia WARN				
URS				
Watermark Risk Management				
Private citizens				

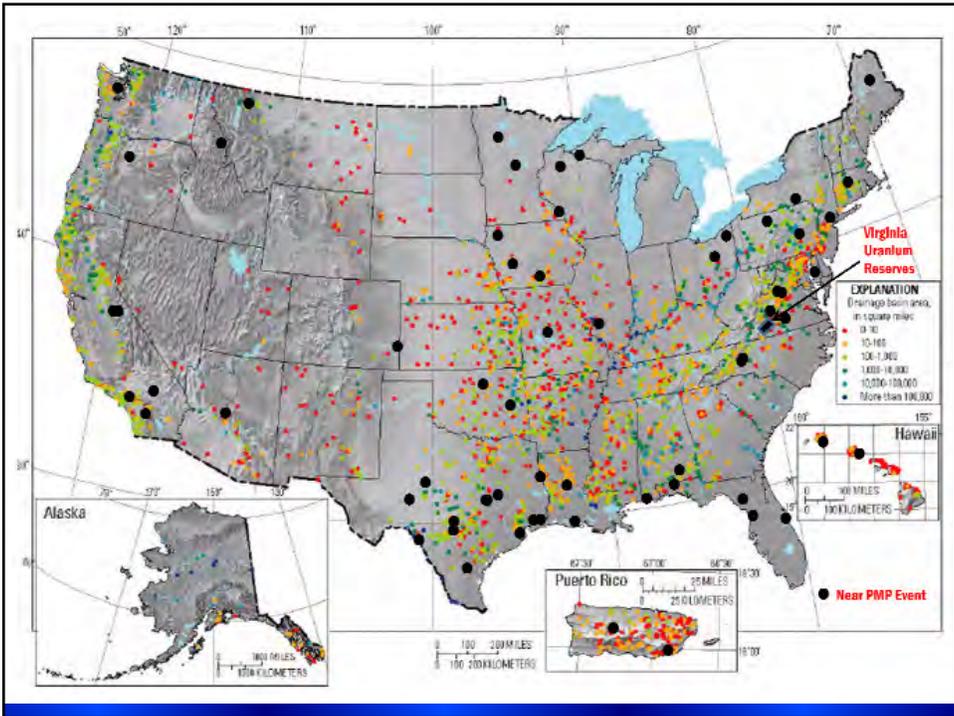
## City of Virginia Beach Uranium Mining Impact Study



City Council Briefing  
June 5, 2012

### Uranium Mining in Virginia

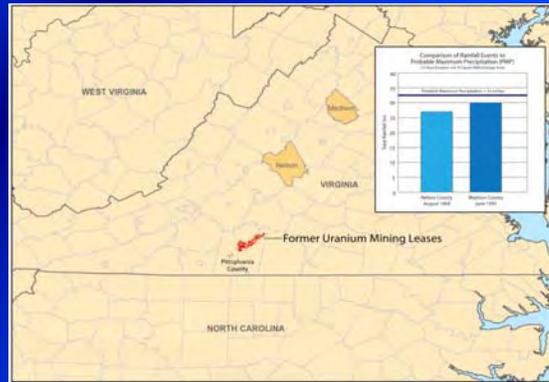
- Excavate uranium ore: 20-76 MCY of solid rock
- Grind ore into sand and clay-like particles
- Leach out uranium – about 0.1% of the ore
- Dispose of tailings – about 99.9% of the ore
  - Tailings retain 85% of the total radioactivity for hundreds of thousands of years
  - Unlike original ore (buried solid rock), tailings are highly mobile via air and water
  - Tailings must be secured in disposal cells that may be above or below grade



## Near PMP Storms in Virginia

### ■ Examples:

- Nelson County – August 1969
  - 27 – 31 inches in 8-hours (Hurricane Camille)
- Madison County – June 1995
  - 30 inches in 14 hours



## Uranium Mining at Coles Hill

- Originally: 119 million # of uranium (0.06% ore)
  - 100 million pounds of yellow cake
  - Open-Pit, 76 MCY of tailings
- Currently: 60 million # of uranium (0.11% ore)
  - 50 million pounds of yellow cake
  - Deep Shaft, 20 MCY of tailings
  - Less than half of tailings returned to mine shafts
  - Remaining tailings disposed in eight “*surface tailings impoundments*” according to VUI feasibility study
- VUI is not bound by any plan. Mining economics, price of uranium, and regulations at the time will dictate the alternative pursued by the company

## City of Virginia Beach Position

Unless it can be demonstrated to a reasonable degree of certainty that there will be no significant release of radioactive sediments downstream, the City of Virginia Beach is opposed to:

- Uranium mining in Virginia, including the proposed Virginia Uranium operation
- The elimination of the existing legislative moratorium on uranium mining
- Any attempt to develop a regulatory framework for uranium mining

City Council Resolution, December 2, 2008

## Uranium Mining in Virginia Studies

- Two Economic Studies
  - Chmura: *The Socioeconomic Impact of Uranium Mining and Milling* – November 2011
  - RTI, International: *Proposed Coles Hill Uranium Mine and Mill* – March 2012
- National Academies of Sciences (NAS) Study
  - *Uranium Mining In Virginia* – December 2011
- Virginia Beach/Michael Baker Engineers Study
  - *Potential Impacts of Uranium Mining in Virginia on Drinking Water Sources* – February 2012 (Phase II)

## **Chmura & RTI Economic Studies**

- 1,000 jobs and \$150 million economic impact to the region's economy per year (20 to 35 years)
- Even if compliant with all environmental regulations, there would be moderate and measurable air, water and soil contamination and impacts close to the facility
- One large, or several small accidents/spills would significantly reverse the economic benefit even if no serious harm to people or the environment occurred

## **NAS on the Potential for Impacts**

- Uranium mining in VA has the potential for significant, long-term environmental impacts
- VA experiences extreme natural events
- Tailings disposal cells represent significant long-term risks and may release tailings if not designed, constructed and maintained to withstand such events, or fail to perform as planned

## **NAS on the Regulatory Environment Needed to Safely Mine Uranium in VA**

- Rigorous and sustainable uranium mining, milling, and tailings disposal regulatory programs based upon world-wide best practices, such as those in Colorado and Canada
- Fully empowered and funded agencies with strong data-gathering, inspection and enforcement powers
- A culture and philosophy embedded in these programs in which compliance with regulations is only the beginning of the licensing process

## **NAS on the Existing Regulatory Environment**

- Virginia has no experience with uranium mining
- Nuclear Regulatory Commission has no experience in states with wet climates and high precipitation events
- *“there are gaps in legal and regulatory coverage for . . . uranium mining, processing, reclamation, and long-term stewardship.”*
- *“there are steep hurdles . . . before mining and/or processing could be established within a regulatory environment that is . . . protective of the health and safety of workers, the public, and the environment.”*

## Virginia Beach/Michael Baker Study

- Computer simulation of downstream water quality impacts from a theoretical catastrophic breach of a, single, above grade, uranium mine tailings disposal cell
- Prepared by Michael Baker Engineers and the National Center for Computational Hydroscience and Engineering, University of Mississippi
- One-dimensional river and two-dimensional reservoir model, with sediment transport and water quality prediction capabilities

## Virginia Beach/Michael Baker Study

- The only valid question raised is the above-grade vs below-grade tailings disposal argument
- The threat to surface water will be dramatically reduced if the tailings are stored below grade
  - The presumption of below-grade disposal was explicitly dismissed in the NAS study
  - Prior engineering study ruled out below-grade storage because of groundwater conditions
  - USGS presentation to NAS: Groundwater in the region is shallow and mobile – but data is limited

## NAS on Below Grade Disposal

*[T]he use of partially above-grade tailings facilities cannot be discounted. For example, the Piñon Ridge uranium mill, the first new uranium mill in the United States in a generation, recently received license approval from the state of Colorado. At that site, full below-grade tailings disposal was considered the best option, but a partially above-grade design with perimeter berms satisfied the relevant regulations and was recommended following detailed site-specific characterization. Therefore, the potential hazard of a sudden release resulting from the failure of a constructed retaining berm remains. An aboveground tailings dam failure (e.g., due to liquefaction associated with a seismic event, an exceptionally high rising rate from local precipitation, improper spillway design leading to overtopping) would allow for a significant sudden release of ponded water and solid tailings into receiving waters.*

Source: Uranium Mining in Virginia, NAS Committee on Uranium Mining, December 2011, responding to arguments lodged against the Baker model. Emphasis added.

## Virginia Beach/Michael Baker Study

- The model does not simulate how or why a disposal cell might fail – it simulates the outcome if one did fail as a result of a catastrophic precipitation event
- Worst case scenario for a single, above grade cell failure on the Banister River
- The event is unlikely and one that technology and regulations should prevent

## Technology and Regulations Aren't Perfect

**Dec 2008 - Associated Press:** Inspections are being ramped up at a California nuclear plant where a battery that powered safety systems didn't work for four years . . .The utility says it will focus on preventing a recurrence.

**Feb 2010 - Associated Press:** Radioactive tritium, a carcinogen discovered in potentially dangerous levels in groundwater at the Vermont Yankee nuclear plant, has now tainted at least 27 of the nation's 104 nuclear reactors — raising concerns about how it is escaping from the aging nuclear plants.

**Nov 2011 - Richmond Times-Dispatch:** Dominion Virginia Power and federal nuclear regulatory staff members covered up knowledge of geologic faulting at the North Anna Power Station site in 1973, according to a U.S. Justice Department memo.

## Technology and Regulations Don't Always Prevent Catastrophes

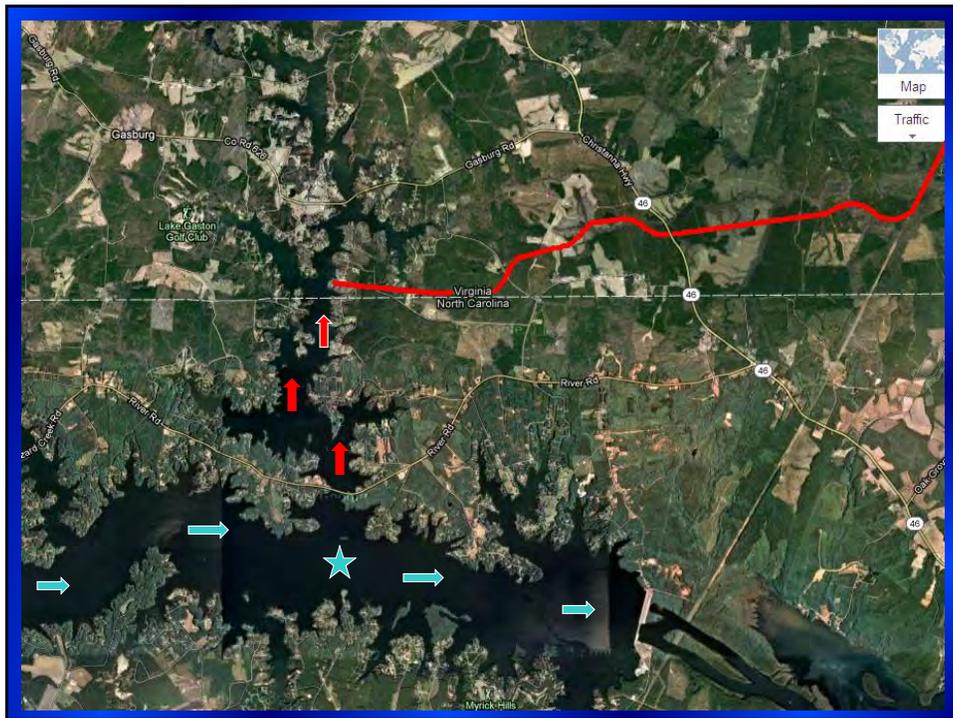
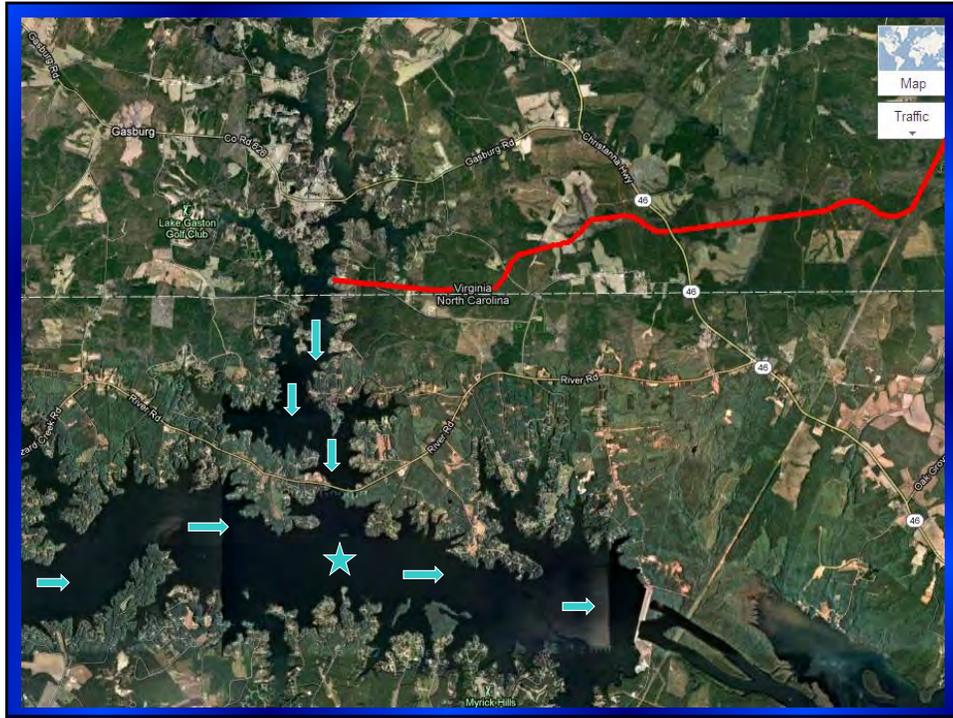
- **1976: Grand Teton Dam** - Failed While Being Filled
  - Unknown geological factors and design flaws
- **1979: United Nuclear Corp** – 0.5 MCY Tailings Liquor Spill
  - Tailings impoundment failed – Design and construction flaws
- **2000: Massey Energy** – 1.5 MCY Coal Sludge Spill
  - Tailings impoundment failed - Subsurface structural defects
- **2008: TVA Kingston Fossil Plant** – 5.0 MCY Fly Ash Spill
  - Tailings impoundment failed – Liquefaction and excess rain
- **2010: Deep Water Horizon** - Oil Well Blowout
  - The company, the regulatory agency, and the “failsafe” blowout preventer, all failed

## Model Assumptions

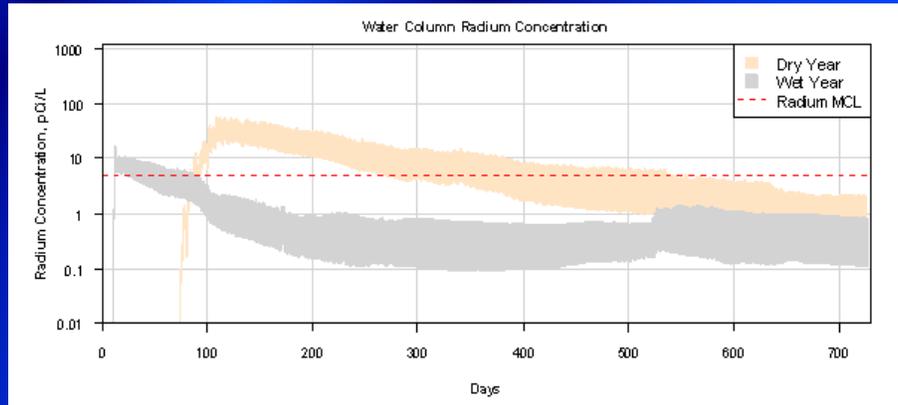
- Release of 0.7 MCY of tailings following a hypothetical disposal cell breach caused by a catastrophic precipitation event
- Discharge to Banister River near Coles Hill
- Tailings release is followed by either
  - Wet period (Sep 1996 – Aug 1998)
  - Dry period (Jun 2001 – May 2003)
- **Lake Gaston pump station does not operate**
- Three contaminants are modeled: radium, thorium, uranium

## VA Beach/Baker Study Results

- 10-20% of radioactivity remains in the water column and flows downstream, thru Kerr & Gaston
- 80-90% of the radioactivity settles in the river and reservoir beds, mostly in the Banister River
- Of the three contaminants modeled, radium has the most impact in the water column in terms of the SDWA and CWA
- Radioactivity in the sediments is a far more significant and longer-term environmental problem than in the water column



## Water Column in Lake Gaston Near Confluence with Pea Hill Creek



## Videos Showing Progression of Radium Through Kerr Reservoir and Lake Gaston

[Kerr Reservoir Dry Year Video](#)

[Lake Gaston - Dry Year Video](#)

## Impacts in Lake Gaston

- Elevated uranium, but less than the Maximum Contaminant Level (MCL)
- Total Radioactivity (radium plus thorium) would remain above the MCL
  - Less than a month during wet years
  - 7 to 10 months during dry years
- Radium radioactivity would remain above the MCL
  - Up to two months during wet years
  - 6 to 16 months during dry years

## Water Supply Intakes

- Contaminants would be problematic for some water systems
  - Even if WTP could meet the MCL, there would be significant public relations/public acceptance issues
- VA Beach would shut off the intake
  - Drawing radioactive contaminants into Pea Hill Creek would certainly be opposed
  - Discharging those contaminants into the Ennis Pond channel likely to involve the CWA
  - Lake Gaston supplies about one-third of water supply for Norfolk, Chesapeake, and Virginia Beach during droughts

## Uranium Mining in VA: Bottom Line

- Significant benefits to the local economy unless there was one big accident or several small ones
- It could be done safely but the necessary regulatory framework is not in place today and there are “steep hurdles” to overcome before it ever would be
- Although unlikely, extreme natural events combined with man-made errors could result in a significant tailings release from above grade tailing disposal cells
- A catastrophic breach of an above grade disposal cell would force the Gaston pipeline to shut down for a period of months to more than one year

## Recommendation

- Although the Nuclear Regulatory Commission will be the regulator of tailings disposal, federal regulators give great weight to the hosting state in all aspects of the regulatory process
- Virginia has never had the requisite regulatory attitude identified by the NAS – Will it ever?
- The probability of a major tailings release is small, but the consequences are great
- **Criteria in the 2008 resolution have not been met, the City should update and reaffirm its opposition to uranium mining in Virginia**



**Questions?**

## **Unregulated Contaminants Monitoring Rule 3**

**Daniel B. Horne, P.E.**

**HRPDC  
Joint Directors Meeting  
6 June 2012**



## **Unregulated Contaminants Monitoring Rule ?**

- **Basically, an EPA-required and waterworks-funded research project**
- **EPA develops a list of contaminants for which occurrence data is missing or not fully developed, or for which analytical methodology is not fully established**
- **Waterworks conduct monitoring**

## **Types of UCMR Monitoring**

- **List 1: Assessment Monitoring** – analytical methodologies are established, monitoring is to fill in gaps in national occurrence data
- **List 2: Screening Survey** – analytical methodology recently developed, monitoring hopefully will settle questions about methodology and provide baseline occurrence
- **List 3: Pre-Screen Testing** – contaminant recently emerged, still working on analytical methodology

## **UCMR 1**

- **Published in Federal Register 17 Sept 1999**
- **Monitoring occurred 2001 – 2003 (some few selected systems monitored 2001 – 2005) – water-producing community and NTNC waterworks**
- **List 1: 13 chemicals**
- **List 2: 13 chemicals**
- **List 3: *Aeromonas***

## **UCMR 1 – Who/what**

- **List 1: All large waterworks (>10,000 population), 800 small waterworks (≤ 10,000)**
- **List 2: 300 EPA-selected waterworks: 120 large, 180 small**
- **List 3: 300 EPA-selected waterworks: 120 large, 180 different small**

## **What Happened?**

- **Results from UCMR 1 were used in making decisions about contaminants on the Contaminant Candidate List 2**
- **On 30 July 2008, EPA decided NOT to regulate 11 contaminants**

## UCMR 2

- **Published in Federal Register on 4 Jan 2007**
- **Monitoring was conducted Jan 2008 – Dec 2010 – final data was posted to EPA’s website in Feb 2012**
- **Covered 25 contaminants (nitrosamines, explosives, flame retardants, insecticides, pesticides, and degradates) (10 were on List 1, 15 on List 2)**
- **13 of 25 were not detected at all**

## UCMR 2 “Hits”

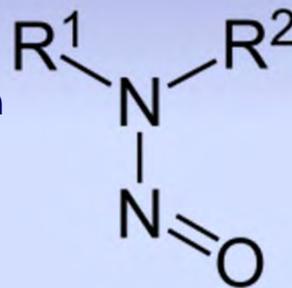
- **Detections above method reporting levels:**
  - 5 of 6 nitrosamines (predominantly NDMA)
  - 6 of 11 insecticides, pesticides, or degradates
  - 1 of 3 explosives
- **Results will feed into upcoming Contaminant Candidate List and regulatory decisions**

## Nitrosamines

- In Sept 2010, EPA identified Nitrosamines as candidate for regulation “as a group” (per “new” EPA strategy announced by Administrator Jackson in March 2010)
- Now on the “short list” for the Regulatory Determination 3 (RD3) – expected mid-2012

## What Are Nitrosamines

- Compounds used in manufacturing
- Also show up in various foods – produced by reaction of nitrates with amines (proteins): beer, meats, cheeses, some fish
- Also show up in drinking water



## **Nitrosamines in Drinking Water**

- **Byproduct of reaction of nitrates with chloramines**
- **Have been found to leach from certain IX resins**
- **Breakdown product of certain treatment chemicals (polymers)?**

## **Why the Concern?**

- **All nitrosamines are classified as carcinogens (not really much debate)**
- **100 million people served by water systems with at least one detection of a nitrosamine (> 10 million people in systems with NDMA and at least one other nitrosamine)**
- **Controlling nitrosamines may be a way to reduce exposure to other DBPs**
- **Issue: how much exposure from drinking water, how much from food?**

## UCMR 3

- Final Rule published in Federal Register on 2 May 2012
- This is an EPA “direct-implement” rule – very limited role for VDH
- Monitoring to occur 2013 – 2015 – includes both water-producing and consecutive systems (community and NTNC)

## List 1: Assessment Monitoring

- 21 chemicals (metals, VOCs, dioxane, perfluorinated compounds)
- Requires waterworks > 10,000 to monitor
  - 73 VA waterworks (71 SW or SWP, 2 GW) – these waterworks have to pay for monitoring
- A national “representative sample” of waterworks ≤ 10,000 will be required to monitor
  - 15 VA waterworks (8 SW & 7 GW) – EPA will pay for the monitoring

## List 2: Screening Survey

- 7 hormones (estradiol, testosterone, estriol, etc.)
- Requires waterworks > 100,000 to monitor – these waterworks will pay for monitoring
- A national “representative sample” of 800 waterworks ≤ 100,000 will be required to monitor – EPA will pay for the monitoring
  - VDH hasn’t seen the list of these waterworks

## List 3: Pre-Screen Testing

- 2 viruses (norovirus and enterovirus)
- 800 EPA-selected waterworks
  - Serve < 1,000 persons
  - Undisinfected groundwater as source
  - Community, NTNC, or TNC
- EPA (or contractor) will do the sampling
- One waterworks in VA selected

## **What's happening so far (large waterworks)?**

- **Large waterworks should have received one or more letters from EPA (Apr or May 2012)**
- **Need to register ASAP for the data system!  
Your password expires in 90 days from date of letter**
- **Deadline for data entry is 1 Oct 2012 (contact info, info for sampling locations, etc.)**
- **Need to select your lab fairly quickly**

## **What about small waterworks?**

- **Waterworks will receive an introductory letter from EPA (date not clear)**
- **EPA will provide instructions on what samples are required and when to sample**
- **EPA will provide sample kits & instructions, plus shipping kits/labels**

## **Hexavalent Chromium**

- **AKA Hex-Chromium, or Chromium-6**
- **EPA's current PMCL (0.1 mg/L) is for Total chromium – includes both +3 and +6 states – chromium can change back & forth between states due to water chemistry**

## **Why the Concern?**

- **+6 appears to be more toxic than +3**
- **In September 2010, EPA proposed to classify +6 as “likely to be carcinogenic” to humans when ingested**
- **Very few waterworks speciate chromium, so no large data pool about occurrence (exposure)**
- **December 2010: Environmental Working Group releases report**

## Current Status

- In Jan 2011, EPA encouraged waterworks to voluntarily monitor for hex-chromium, as a way to increase data on occurrence (unfortunately, EPA provided no guidance on how to interpret the data)
- July 2011 – CA set a final Public Health Goal of 0.02 µg/L – CA also looking at a new State MCL
- Hex-chromium is part of UCMR 3, so the occurrence database will be significantly strengthened

## Lots of Issues

- Lack of understanding of chemistry (Cr+3 to Cr+6 and back, at plant and in distribution system)
- Limited understanding of specific species removal
- Residuals management
- Many concerns about the analytical method (it's part of List 1, but maybe should be List 2)

