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BEFORE THE
POSTAL REGULATORY COMMISSION
WASHINGTON, D.C. 20268-0001

Retail Access Optimization Initiative Docket No. N2011-1

**RESPONSE OF PUBLIC REPRESENTATIVE WITNESS NIGEL WATERS TO UNITED STATES POSTAL SERVICE INTERROGATORIES USPS/PR-T1-1-16**
(October 11, 2011)

The Public Representatives hereby provide the response of witness Nigel Waters, PhD, to the above-listed interrogatories of the United States Postal Service dated October 3, 2011. The interrogatories are stated verbatim and followed by a response.[1]

Respectfully Submitted,

/s/ Tracy N. Ferguson
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[1] The Interrogatories filed by the Postal Service on October 3, 2011, included two USPS/PR-T1-13s. For clarity, we will refer to the second so numbered that deals with Thiessen polygons as USPS/PR-T1-13 (second).

**RESPONSE OF THE UNITED STATES POSTAL SERVICE**
**TO INTERROGATORY OF THE PUBLIC REPRESENTATIVE**

**USPS/PR-T1-1**
Please explain all of the analytical steps you took, from input data sources, assumptions, data limitations, all processing steps, output data, as the Commission's Rule 31(k) (39 C.F.R. § 3001.31(k)) requires. This documentation should include all data upon which you rely so that your analyses can readily be replicated. Please document each of your tables plus separate results reported in the text.

a. Did you attempt alternative analyses that you ultimately chose not to include in your testimony? If not, why not? If so, please provide a general description of what those efforts attempted to do and why they were ultimately abandoned.

**Response:**

See PR-LR-NP1

a. I wanted to do a thorough analysis of the Postal Service's entire retail network, but had to limit my analysis to what was presented in my testimony due to case time restraints and lack of available data. The fact that the Postal Service did not produce a document with post office location information until late September curtailed my ability to do all the analyses I would like to have performed. The portion of my testimony that speaks to future potential alternative analyses is representative of the expansive work I wanted to do in this case, but could not perform due to afore-mentioned limitations.

**RESPONSE OF THE UNITED STATES POSTAL SERVICE**
**TO INTERROGATORY OF THE PUBLIC REPRESENTATIVE**

**USPS/PR-T1-2**
On what date were you contacted about the possibility of your providing testimony in this docket? Had there been any previous discussion about the potential for your testifying at some unknown point in the future? If so, please explain the context.

a. By whom were you contacted? What goals for the research were discussed?
b. Please describe how you arrived at the specific research design you used. What, if any, alternatives were considered and what factors led to the selection you finally made?
c. How long did it take for your contract to be worked out? What details required the most attention to detail? When was it signed?
d. How much time and effort did you put into the contract, including finalization of the testimony? (Please limit any quantified response to hours, leaving specific dollar amounts out.)
e. Did you, whether with the assistance of the Public Representative or otherwise, consider other alternative methods for optimizing a retail network, or were you always focused on the one presented in your testimony? Please explain what alternatives, if any, that were considered and why they were or were not used.

**Response:**

The PR objects to 2(b) – (d) on the basis of relevancy.

a. I was contacted by the Public representative on Augsut 30, 2011, and began work shortly, thereafter.
e. Please refer to answer T1-1(a)

**RESPONSE OF THE UNITED STATES POSTAL SERVICE**
**TO INTERROGATORY OF THE PUBLIC REPRESENTATIVE**

**USPS/PR-T1-3**
Would it be fair to characterize your testimony as presenting an alternative method for optimizing the Postal Service's retail network? Please explain any equivocation beyond a yes or no response.

a. What is your understanding of the method the Postal Service chose as reflected in this RAOI docket?

b. Do you understand that the Postal Service is attempting to test anything in RAOI? Please explain your response.

c. Do you have any understanding of what the Postal Service expects to learn via RAOI? Please explain your understanding.

d. Does your optimization approach allow the conduct of the testing the Postal Service sought to undertake? Why or why not? USPS/PR-T1-4. Are you familiar with what witness Boldt characterizes as "alternate access" channels, means by which customer can access postal services without visiting a traditional brick and mortar postal facility operated by postal employees? Please explain your understanding or point to the material(s) upon which you base it.

e. To what extent, if at all, does the optimization method you sponsor allows [sic] any investigation of how customers do or do not use alternate access methods. Please explain any response that entails a positive response.

f. Did you consider any optimization method that would allow investigation of alternate access utilization? Please explain.

g. What do you understand are the Postal Service's goals are for RAOI?

h. What do you expect the Postal Service will learn from RAOI?

i. Is it your expectation that all of the facilities nominated for discontinuance by RAOI will be formally discontinued? Please explain your expectation and how it developed.

**Response:**

That is a fair characterization.

a. My analysis does not require an understanding of the Postal Service methodology. Location allocation is independent of any method the Postal Service may currently use so long as it is not a location allocation method, which my testimony clearly demonstrates it is not. My analysis required a location to be classified as either identified "for discontinuance procedures" or "not identified for discontinuance procedures," regardless of the methodology that determined this classification.

b. I have not read anything discussing Postal Service RAOI testing.

c. If the Postal Service expects to learn something from the implementation of RAOI, this is something is better stated by the Postal Service than left to my conjecture.

d. The initial question of sub-part of (d) is unclear, I do not understand what you are asking. I did not review witness Boldt's testimony.

e. The Postal Service has not provided information regarding the number or location of alternative access sites. I was unable to investigate alternative access sites.

f. See Response T1-3(e).

g. I am unaware of any express goals the Postal Service has for RAOI.

h. I am unaware of any methods the Postal Service will use to learn from RAOI.

i. I do not know the Postal Service's method for determining which RAOI facilities will close and which will remain operational. For this reason, I cannot say which facilities will formally close as a result of RAOI.

**RESPONSE OF THE UNITED STATES POSTAL SERVICE**
**TO INTERROGATORY OF THE PUBLIC REPRESENTATIVE**

**USPS/PR-T1-4**
Are you familiar with what witness Boldt characterizes as “alternate access” channels, means by which customer can access postal services without visiting a traditional brick and mortar postal facility operated by postal employees? Please explain your understanding or point to the material(s) upon which you base it.

a. To what extent, if at all, does the optimization method you sponsor allows any investigation of how customers do or do not use alternate access methods. Please explain any response that entails a positive response.
b. Did you consider any optimization method that would allow investigation of alternate access utilization? Please explain.
c. What do you understand are the Postal Service’s goals are for RAOI?
d. What do you expect the Postal Service will learn from RAOI?
e. Is it your expectation that all of the facilities nominated for discontinuance by RAOI will be formally discontinued? Please explain your expectation and how it developed.

**Response:**
a. See Response T1-3(e).
b. See Response T1-3(e).
c. I do not know the specific goals of the Postal Service, this is something better stated by the Postal Service than left to my conjecture.
d. This is something better stated by the Postal Service than left to my conjecture.
e. My understanding is that all the retail facilities on the RAOI list are undergoing a discontinuance review.

**RESPONSE OF THE UNITED STATES POSTAL SERVICE**
**TO INTERROGATORY OF THE PUBLIC REPRESENTATIVE**

**USPS/PR-T1-5**
Do you expect that you are technically and professionally competent to conduct any form of optimization that would include investigation of alternate access? Please explain.

a. What proportion of your professional work entails use of geographic toolsets of the type(s) used in your testimony? Please provide a general understanding of your professional work's ambit.
b. What do you see as the benefits of such tools for studying issues with geographic implications?
c. Do you perceive any limitations typical or inherent in use of such tools or the approaches often taken when using them? Please explain.
d. Do you agree that the approach to optimization taken in your testimony assumes that access to retail postal services requires use of a brick and mortar postal facility operated by postal employees? Please explain your response in terms that include the benefits and drawbacks of the approach you take.
e. What is your understanding of how the Postal Service "optimized" its selection of nominee offices included in RAOI?
f. What is your understanding of how the Postal Service could or should have improved the optimality of its selected RAOI offices? Please explain your response.

**Response:**

a. I am a specialist in the analysis of geographic information and so a large portion of my professional work is in this area.
b. These tools provide a starting point for understanding the spatial aspects of trying to optimize the closure of facilities such as post offices.
c. There are limitations to these tools. They optimize the spatial properties of the system in terms of the service area covered within a predefined distance by the system of post offices. They can be used to minimize the amount of travel that would be incurred by the surrounding population if they wish to avail themselves access to postal services provided by the post office. Thus these models achieve

a system wide solution. They can be applied to subsets of post offices producing optimized solutions for the subset of post offices that are included in the analysis.

d. The approach used looked at how to optimize the closure of bricks and mortar post offices. However, other types of outlets for postal services could be included in this type of analysis. It should also be noted that such analysis could include postal facilities that are or are not operated by postal workers. Obviously facilities operated by postal workers that are housed in other businesses have many advantages and are used widely in other countries such as Canada.

e. My understanding was that the Postal Service is considering closing selected offices. This may be a necessary approach but may lead to gaps in coverage in rural areas with low population densities and where the density of postal offices is already lower than in urban areas.

f. The main improvement is to ensure that any gaps in service incurred by post office closure are minimized.

**RESPONSE OF THE UNITED STATES POSTAL SERVICE**
**TO INTERROGATORY OF THE PUBLIC REPRESENTATIVE**

**USPS/PR-T1-6**
How often do you visit Post Offices (as that term is applied in the research reported in your testimony) for purposes of accessing postal services?

a. What transactions are typical for you?
b. How frequently do you visit Post Offices?
c. Is the pattern of your visits one that invariably involves a trip from your home to the Post Office and directly back home again? Please explain whatever patterns you can see in your own behavior.
d. Do you ever buy stamps in a pharmacy, grocery store, other retail location, or at an ATM? If so, with what frequency? In what form (roll, booklet, Forever Stamps)? Did you make a trip to that location from home? Did you buy anything else? Did you return directly home?
e. Please answer these same questions in terms of others, if any, with whom you live.
f. Is your residence in a rural location? What definition of "rural" are you applying in your response?

**Response:**

The Public Representative objects to Interrogatory 6 in its entirety on the basis of relevancy. Dr. Waters' personal purchasing habits and living arrangements are irrelevant to the data analysis he performed in this case.

**RESPONSE OF THE UNITED STATES POSTAL SERVICE**
**TO INTERROGATORY OF THE PUBLIC REPRESENTATIVE**

**USPS/PR-T1-7**
Your testimony starts by looking at a geographic area in isolation from its surroundings; then it examines static patterns in population density within that geographic: is this a fair summary? If not, please provide your own summary

a. Please identify and explain those contexts in which this paradigm both is and is not a good choice, elaborating upon any patterns you see.
b. Can you cite to authoritative sources that address this issue? If so, please do so (and if convenient, provide copies).
c. What classes do you teach to whom?
d. Have you published any professional work in the last six years? If so, please provide a list of them.

**Response:**
This is a fair summary of what has been achieved so far but the methodology can consider the system as a whole and thus minimize the issue of boundary problems. Population changes can be estimated and projected and this would allow the approach that we used to become more dynamic.

a) The approach that we used is an exploratory approach and a starting point for further analysis. It allows the spatial aspects of the problem to be understood in a transparent and objection fashion.
b) The following book is a widely cited text in this field:

   Business site selection, location analysis, and GIS / Richard L. Church, Alan T. Murray. Hoboken, N.J. : John Wiley & Sons, 2009.

   The following articles are concerned with retail location:

- 1998 - "Retail Location Analysis, Step Seven: Judgment, Implementation, Monitoring," *Geo Info Systems*; in press. (Grant Thrall).

- 1998 - "Retail Location Analysis, Step Six: Identify Markets For Expansion," *Geo Info Systems*; in press. (Grant Thrall, Juan del Valle and Gordon Hinzmann)

- 1998 - "Retail Location Analysis, Step Five: Assess Market Penetration," *Geo Info Systems,* vol. 8, number 9, 1998; pp. 46-50. (Grant Thrall, Juan del Valle and Gordon Hinzmann)

- 1998 - "Retail Location Analysis, Step Four: Identify Situation Targets." *Geo Info Systems,* vol. 8, number 6, 1998; pp. 38-43. (Grant Thrall, Juan del Valle and Gordon Hinzmann)
- 1998 - "Applying the Seven-Step Site Selection Methodology to Red Lobster Restaurants: Steps One and Two." *Geo Info Systems,* vol. 8, number 2, 1998; pp. 40-43. (Grant Thrall, Juan del Valle and Gordon Hinzmann)

- 1998 - "Retail Location Analysis, Step Three: Assessing Relative Performance." *Geo Info Systems,* vol. 8, number 4; pp. 38-44. (Grant Thrall, Juan del Valle and Gordon Hinzmann)

- 1997 - "Retail Location Analysis With GIS: Seven Strategic Steps." *Geo Info Systems,* vol. 7, number 10, 1997; pp. 42-45. (Grant Thrall, Juan del Valle and Gordon Hinzmann)

- 1997 - "Antecedents of Applied Geography: Marketing Geography." *Applied Geographic Studies*. 1 (3), 207-214. (Grant Thrall and Juan del Valle)

- 1997 - "The Calculation of Retail Market Areas: The Reilly Model." *Geo Info Systems*, vol. 7, no. 4: pp. 46-49. (Grant Thrall and Juan del Valle)

- 1996 - "Calibrating An Applebaum Analog Market Area Model With Regression Analysis." *Geo Info Systems*, November, 6 (11) 52-55 (Grant Thrall and Juan del Valle)

- 1996 - "William Applebaum: Father of Marketing Geography." *Geo Info Systems*, 6 (8) 50-54. (Grant Thrall and Juan del Valle)

- 1996 - "Retail Location Analysis: Antecedents." *Geo Info Systems*, 6 (6) 48-52 (Grant Thrall and Juan del Valle)

c) I teach graduate and undergraduate classes in the Department of Geography and Geoinformation science at George Mason University. These classes include Transportation Geography and Quantitative Methods both of which cover, in part, these approaches.

d) I have attached a brief CV. One of my key publications in Transportation GIS that deals with these methods was published in 1999 and re-published in 2005 and has been cited almost 50 times. Other publications of mine in this field have been published in international journals.

**RESPONSE OF THE UNITED STATES POSTAL SERVICE**
**TO INTERROGATORY OF THE PUBLIC REPRESENTATIVE**

**USPS/PR-T1-8**
You indicate that supporting materials for your testimony are made available in library reference PR-LR-NP-1. From the publicly available description of that material, it appears it was filed in nonpublic form only because some of its source materials were filed that way by the Postal Service. Yet the description keeps the door to its contents firmly closed. Would agree that any publicly sensitive data would relate to specific facilities, and not more generally to your work?

a. Please explain in detail what materials of yours are available in that reference (without repeating materials encompassed by your response to USPS/PR-T1-1).
b. What do "screenshots" illuminate to the reader?
c. What statistical and all other programs do you use (generally)?
    i. For the subset consisting of each tool used in the research reported in your testimony, please provide a paragraph describing its usual or appropriate utilization, how you use it, and its acceptance in any scientific community (supported by citations if you have these available).
    ii. Is each of these commercially available? If so, how (via SAAS, over the counter package, purchase of an appliance, time on a mainframe, etc.)? If not, was it created by you or a colleague specifically for this project?
d. Is "ESRI" or "Esri" an acronym? What does it stand for?

**Response:**

PR-LR-NP-1 contains post offices identified using Postal Service finance numbers which are nonpublic data. The contents of my analysis led up to the graphics produced by the analysis, which are publically available as part of PR-T1. Without post office identification numbers, the work papers used to develop my testimony are meaningless; as such, there is no value in filing a partial library reference.

a) See preface to PR-LR-NP-1.
b) Screenshots were provided to help the reader understand the methodology we employed and the data that were used in the analysis.
c)

i. We use GIS tools and statistical tools. For this analysis only GIS tools were used. The software that was used was ArcGIS 10 as explained in our deposition. This is the industry leading GIS software and is accepted throughout government, industry and academia literally throughout the world. My peer reviewed publication “Transportation GIS” cited in my CV (attached) and available on my website: http://ggs.gmu.edu/People/Waters/Waters.html provides all the necessary proof to show that this approach is widely accepted in the scientific community.

ii. The software is commercially available.

d) Esri is the currently preferred usage and is no longer considered an acronym. All necessary information can be found at their website: http://www.esri.com/

**RESPONSE OF THE UNITED STATES POSTAL SERVICE**
**TO INTERROGATORY OF THE PUBLIC REPRESENTATIVE**

**USPS/PR-T1-9**
Did you write the biographical section of your testimony specifically for use in your testimony, or did you pull it from another work? Why is it written in the third person? Please explain.

**Response:**

Yes, I attempted to condense my biography to reflect those portions most relevant to the work I performed in this case. My biography is written in the third person as this is the format in which it is often requested for publication.

**RESPONSE OF THE UNITED STATES POSTAL SERVICE**
**TO INTERROGATORY OF THE PUBLIC REPRESENTATIVE**

**USPS/PR-T1-10**
Have you previously provided sworn testimony (which would include any depositions)? If so:

a. Please identify each occasion, the matter involved, the date(s), and your role.
b. Please explain, for each, whether testimony was written, oral, or both.
c. For any expert testimony, please either provide a copy or explain in detail what the case was about, your role in the case, the parties for and against whom you testified, whether your testimony was cited in the decision or order that resulted, and your understanding of how your testimony fit into the case [looking for paragraph(s) on each, not pages].

**Response:**

I have not previously provided sworn testimony.

**RESPONSE OF THE UNITED STATES POSTAL SERVICE**
**TO INTERROGATORY OF THE PUBLIC REPRESENTATIVE**

**USPS/PR-T1-11**
Please detail your undergraduate and graduate school education, including dates, subjects, majors, minors, degrees, schools and locations.

a. Please provide your work history since getting a PhD.
b. Does the Postal Service comprise a “transportation system” as you use that term in your biographic paragraph? Please explain.
c. Does your testimony treat the Postal Service as a “transportation system”? Please explain.

**Response:**

Please see attached Curriculum Vitae

a) Please see attached Curriculum Vitae
b) Yes, you move letters and parcels around a transportation network. Your customers travel to your post offices.
c) We optimized parts of the system from the point-of-view of the population’s access to post offices.

**RESPONSE OF THE UNITED STATES POSTAL SERVICE**
**TO INTERROGATORY OF THE PUBLIC REPRESENTATIVE**

**USPS/PR-T1-12**
Please explain how the analysis carried out for your testimony demonstrates its effectiveness.

a. For what purpose is it effective?
b. Why was your analysis conducted only for Kansas? How was Kansas chosen? What other states (or other geographic areas) were considered before settling on Kansas? Please explain how we got to where we are and why.
c. Is it your understanding that the United States Postal Service organizes and manages the mail business on a state-specific basis? Please explain your understanding of how the Postal Service is organized.
d. How well would the analysis you conducted for Kansas work in Alaska, Guam, Puerto Rico; Washington, DC; or Utah? Would there be any limitations upon the analysis, or use of the results in any of these? Please explain.
e. To your knowledge, which Post Offices (including other classified units) in Kansas have closed? Which ones are closing? How is the status of these offices reflected in your analysis?

**Response:**

a) For optimizing the population's access to post offices by minimizing straight-line impedance.
b) Kansas was chosen because it represented a manageable task within the time constraints that we were working under. It was essentially a proof of concept as to one methodology that could be used to help optimize the postal retail network and maximize the population's access to the service.
c) I do not know the answer to this question and it seems irrelevant to the fact that we were providing a proof of concept in terms of a methodological approach.
d) The analysis should work for any state or jurisdiction where postal services are provided but the boundary problems would vary. Specifically customers in a mid-west state could avail themselves of postal services in an adjacent state. This would not be possible in the case of an island.

e) We were dealing with a system wide analysis. We were not looking at individual offices. I understand that the offices undergoing discontinuance procedures may not be closed, but the final list was not available when I developed my testimony (and is still unavailable). As such, my testimony does not reflect the final status of RAOI offices.

**RESPONSE OF THE UNITED STATES POSTAL SERVICE**
**TO INTERROGATORY OF THE PUBLIC REPRESENTATIVE**

**USPS/PR-T1-13**
Please go through the thirteen lines of two columns in your “Findings” section and explain in terms sensible to a layman what each item in the left column is and what the corresponding term in the right column signifies. Please include in this discussion what other values or choices for the right column could have been selected or chosen, and why each was not.

**Response:**

These are the system parameters required to replicate my analysis using ArcGIS. Any specific decisions regarding values or choices selected were for ease of calculation. Users of the ArcGIS program will be familiar with the information displayed in this section and laymen ought simply to understand that those values are programming parameters.

**RESPONSE OF THE UNITED STATES POSTAL SERVICE**
**TO INTERROGATORY OF THE PUBLIC REPRESENTATIVE**

**USPS/PR-T1-13 (second)**
Do you agree that your analysis using "Thiessen polygons" defines respective service areas by the location of a Post Office, station or branch? Please explain any disagreement or equivocation regarding agreement.

a. Is it your understanding that the Postal Service operates and manages its domestic service area in similar terms, that is, as a series of service areas each of which is an exclusive unit serving customers located in that area? Please explain your response in terms sensible to a layman.
b. Does the Postal Service classify its customers exclusively by where they live? By where they work? What similarities or differences, including materiality, do you see in which the Postal Service can or does use?
c. Can a customer access postal services by visiting a Post Office near her grandmother's house?
d. What, if any, ramifications for your optimization does the plurality of choices available to each customer have? Please explain your response.
e. Must postal customers access retail service exclusively via Post Offices, stations and branches? What is your understanding of the range of options available to customers?
f. If you understand 1) that customers have a range of options for access to retail postal services, including contract postal units (CPUs), consignees, postage by fax/phone/mail, Village Post Offices, rural/HCR letter carriers while delivering mail to respective receptacles, Automated Postal Centers (freestanding kiosks), non-personnel units, friends and family, Approved Shippers, among others; 2) that customers are interested in different products and services over time, such as Priority Mail, Express Mail, international postcards, parcel services, sending church bulletins, using Certified Mail or Registered Mail, etc., but that 3) approximately 85 percent of purchases are postage alone, how can the approach used in your testimony optimize customer access to retail services?
g. Is your response to part (f) in any way related to your statement on page 4, lines 17-18 that, "Thiessen polygons can serve as a rough proxy for estimating the dimensions of facility service areas in geographic space"? Please explain your response amenable to understanding by laymen.

**Response:**

Yes, I agree.

a) I have no idea. It is irrelevant to our analysis. We were concerned with providing access to postal services for the population at large.

b) I do not know what the Postal Service does. Again, how the Postal Service categorizes groups is a question best answered by the Postal Service.
c) To formulate an answer this hypothetical question requires me to rely and assume unspecified facts, such as the ability and mobility of the granddaughter; location of the grandmother's house; and the nearest proximate alternate access site. Without more specificity of facts and circumstances, I cannot properly address the question.
d) We considered postal services as a monolithic i.e. an undifferentiated bundle.
e) Don't know. We were concerned only with post offices as an undifferentiated entity.
f) The approach we used optimized access to post office locations as they exist now and as they would be affected by closure. It was exploratory work.
g) Thiessen polygons allow us to determine what population is closest to which postal outlet.

**RESPONSE OF THE UNITED STATES POSTAL SERVICE**
**TO INTERROGATORY OF THE PUBLIC REPRESENTATIVE**

**USPS/PR-T1-14**
Please confirm that your discussion of "expanded service areas" at the top of page 7 refers to what you found to be statistically significant increases in the size of single postal facility service areas, defined as those areas are in your research.

a. What is your understanding of the extent which customers in each facility's service area make use only of that facility for meeting their needs for access to postal retail services? Please explain your response.
b. Please confirm that discontinuance of specific postal facilities in or near those "expanded service areas" has yet to occur and may not occur. Please explain in detail any failure to confirm.
c. Please confirm that your subsequent "Demographic Analysis" is limited to those three identified "expanded service areas" indicated by blue ovals in the second map in Figure 4.
d. Please explain how you identify customers in those "expanded service areas" and specify the actual criteria used. To what extent, if at all, do those criteria overlap with distinctions made by postal criteria such as address, five-digit ZIP Code, nine-digit ZIP Code, and city/town name in address?
e. Please provide any statistical analysis of differences between those three "expanded service areas" and the rest of Kansas, including measures of statistical significance and confidence intervals.

**Response:**

I don't understand this question.

a) Some people may not use the nearest facility but it makes sense that most would.
b) I believe this to be the case.
c) Yes. Again it was exploratory.
d) We do not identify customers. We identify populations which are assumed to be reasonable surrogates for customers.
e) We do not have measures of statistical significance in this instance as we are using a population.

**RESPONSE OF THE UNITED STATES POSTAL SERVICE**
**TO INTERROGATORY OF THE PUBLIC REPRESENTATIVE**

**USPS/PR-T1-15**
Please confirm that the “Nearest Neighbor Analysis” is confined to linear distance between classified postal facilities and does not encompass customer locations or densities.

**Response:**

Confirmed.

**RESPONSE OF THE UNITED STATES POSTAL SERVICE**
**TO INTERROGATORY OF THE PUBLIC REPRESENTATIVE**

**USPS/PR-T1-16**
What experience do you have managing retail networks of any type or size? Please explain in detail any such experience you have.

a. Is it your understanding that the Postal Service's primary goal in managing the locations of its facilities is to minimize the average distance of the population served by its nearest Post Office?
b. What is your understanding of the Postal Service goal in RAOI?
c. Do you recommend that the Postal Service manage its facilities to this exclusive goal?
d. If the Postal service were to do so, is it your position that the Postal Service could then discontinue more Post Offices?
e. If the Postal Service were to do so, would it also need to relocate facilities in response to changes in how many people live where?
f. Assuming evidence indicated that all customers with jobs access postal facilities nearest to their work locations. In your estimation, should the Postal Service instead conduct its analysis of the types you recommend using work locations for workers and residences for others? Or should it instead assume that workers will take care of access to postal services for their residential households? Please explain your responses.
g. Do you expect that postal management will adopt and undertake the analyses you recommend in your testimony? Why or why not? Please explain your response.
h. Are the suggestions you make in your testimony for locating Post Offices the only reasonable methods of doing so?
i. On page 14, line 8, should the word "exiting" instead read "existing"?

**Response:**

None. It was irrelevant to a spatial analysis of the pattern of post office locations.

a) No, this may or may not be the primary goals of the Postal Service but our analysis that access to postal services is likely to be important to the population at large.
b) Our goal in the analysis was to provide an understanding of the access of the population to postal services before and after closure and to recommend

alternative proposals that we ensure the highest access with a minimum of closures. Our goal was not to second guess the goals of the Postal Service which may include many other aspects of their operation which they may also wish to optimize.

c) Absolutely not.

d) I do not believe that they should do as the question implies.

e) This may indeed be necessary.

f) This is an excellent question. Subsequent analysis using our approach should indeed consider access to post offices from work locations. Needless to say, this greatly increase the complexity of the analysis. It may also suggest that new postal outlets staffed by employees of the Postal Service need to be located in other locations and buildings that are accessible to those workers.

g) I hope the Postal Service does indeed use this type of analysis. They use the ArcGIS 10 software in their operations and could indeed use the software to optimize facility closures and openings – but it is important to realize that this is only one type of analysis that needs to be done. Other evidence and analysis of many forms needs to complement the spatial analysis advocated here.

h) No, see the answer to the previous question. This is a highly complex problem and the spatial analysis is a complement or a supplement to other types of analysis.

i) Yes, indeed.

# Nigel Waters: Curriculum Vitae

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## Bio Summary

Nigel Waters obtained a First Class, Honours BA from Cambridge University in 1972 (winning the Downing College Prize) and his MA (awarded the McIntosh prize) and PhD from the University of Western Ontario in 1973 and 1977, respectively. He joined the Geography Department at the University of Calgary in 1975 and was promoted to Full Professor in 1990. He was nominated twice for the Master and Superior Teaching Awards, and has conducted numerous studies in GIS, modelling, spatial analysis and transportation geography. He is a former President of the Western Canadian Association of Geographers, and an associate editor of GeoWorld where he is also a regular contributor of the Edge Nodes column. At the University of Calgary he was the Founding Director of the Masters in GIS Program and of the Transportation Theme School and Transportation Studies Major. Prior to leaving the University of Calgary (where he is now Professor Emeritus of Geography) he was participating in two GEOIDE research projects, leading a SSHRC Project and was working with the Nobel Peace Prize winning Carter Center in Atlanta as the Technical Director of the Mapping the Media in the Americas Project (www.mediamap.info ). In June 2007 he was appointed Professor of Geography and Director of the Center of Excellence for Geographic Information Science at George Mason University in Fairfax, Virginia. He has been appointed the Henrietta Harvey Distinguished Lecturer for Fall 2010 at Memorial University, Newfoundland.

## Research Interests

GIS; Transportation GIS; Web-based GIS; GIS and SDSS; GIS and Sustainability; Traffic Safety; Medical Applications of GIS; GIS, the Media and Democracy; Network Analysis.

## Current Research

Mapping the Media in the Americas; Medical Geography Applications;
Promoting Sustainable Communities Through Participatory Spatial Decision Support;
Web-based PPGIS and Transportation Planning; Case Based Reasoning and Traffic Safety Analysis

## Research Programs

**Mapping the Media in the Americas** www.mediamap.info (Funding approximately $1 million primarily from The Open Society Institute, Hughes, Canadian International Development Agency, Social Science Humanities Research Council). Before leaving the University of Calgary Nigel Waters was the Technical Director of a project to map media concentration in the Americas. In order to promote transparency in elections and democratic politics, the project aims to utilize the functionality of a GIS to map the media and analyze spatially the pivotal role of the media in political finance in 12 countries in the Americas. Various datasets (including media, election and census) from each country will be organized geographically in a GIS for visualization purposes, and geo-statistical analyses will be performed to understand better the associations and patterns within these disparate datasets.

**Promoting Sustainable Communities Through Participatory Spatial Decision Support**. (Funding from the GEOIDE Networks of Centres of Excellence, Canada and from the Social Sciences and Humanities Research Council, Canada).The use of open source software to develop GIS based websites for garnering the opinions of professional planners and members of the public concerning proposed transit routes and other planning developments.

## Selected, Recent Publications and Presentations

***Chapters in Books***

**Seel, K. and Waters, N. M. 2009**. Complex, Adaptive Systems, Through Time and Across Space: A Case Study of the Deregulated Alberta Electrical Power Generation Industry. Ch. 14, pp. 187-207 in A. Reggiani and P. Nijkamp (eds), *Complexity and Spatial Networks: In Search of Simplicity*. Springer: Berlin, New York.

**Waters, N.M. 2009.** Representing Surfaces in the Natural Environment: Implications for Research and Geographical Education. Ch. 3, pp. 21-39, in Mount, N. J., Harvey, G. L., Aplin, P. and Priestnall, G., Eds., Representing, Modeling and Visualizing the Natural Environment: Innovations in GIS 13, CRC Press, Florida.

**Leslie, T and Waters, N. M. 2009.** Geographic Information Systems. Encyclopedia of Library and Information Science, Third Edition, Taylor and Francis, New York, in press.

**Waters, N.M. 2006.** Network and Nodal Indices: Measures of Complexity and Redundancy: A Review. *Spatial Dynamics, Network and Modelling*, edited by Aura Reggiani and Peter Nijkamp, Edward Elgar, Cheltenham, UK & Northampton, MA, USA.

**Waters, N.M., 2005.** Transportation GIS: GIS-T, Chapter 59 in *Geographical Information Systems*, Second Edition, Abridged, edited by Longley, P.A., Goodchild, M.F., Maguire, D.J. and Rhind, D.W.; Wiley, New York.

**Li, K., Waters, N.M., 2005.** Transportation Networks, Case-Based Reasoning and Traffic Collision Analysis: A Methodology for the 21st Century, Chapter 4 in *Methods and Models in Transport and Telecommunications,* edited by Reggiani, A., Schintler, L. A.; Springer, New York.

***Articles in refereed journals***

**Patel, A. B., Tu, J. V., Waters, N. M., Ko, D. T., Eisenberg, M. J., Thao Huynh, T., Rinfret,S., Knudtson, M. and Ghali, W. A. 2010.** Access to Primary Percutaneous Coronary Intervention for ST-Segment Elevation Myocardial Infarction in Canada: A Geographic Analysis. Open Medicine, in press.

**Delparte, D. M., Jamieson, B. and Waters, N. M. 2008.** Statistical runout modeling of snow avalanches using GIS in Glacier National Park, Canada. Cold Regions Science and Technology, v54 #3, 183-92. http://dx.doi.org/10.1016/j.coldregions.2008.07.006

**Patel, A., Waters, N. M. and Ghali, W., 2007**. Determining geographic areas and populations with timely access to cardiac catheterization facilities for acute myocardial infarction care in Alberta, Canada. *International Journal of Health Geographics*, 6 (47): http://ij-healthgeographics.com/content/pdf/1476-072x-6-47.pdf

**Sun, H., Forsythe, W. K. and Waters, N. M. 2007.** Modelling Urban Land Use Change and Urban Sprawl: Calgary, Alberta, Canada. *Networks and Spatial Economics*, vol. 7, #4, pp. 353-376**.** http://springerlink.metapress.com/content/n33t5888j64p1l06/fulltext.pdf

**Vik Stronen, A., Paquet, P., Herrero, S., Sharpe, S., and Waters, N. 2007.** Translocation and Recovery Efforts for the Telkwa Caribou, Rangifer tarandus caribou, Herd in Westcentral British Columbia, 1997 – 2005, Canadian Field Naturalist, vol. 121 (2), 155-163.

**Forsythe, W. K. and Waters, N. M., 2006.** The Utilization of Image Texture Measures in Urban Change Detection. *Photogrammetrie, Fernerkundung, Geoinformation*, vol. 4, pp. 287-296.
**Alexander, S.M., Waters, N.M. and Paquet, P. C. 2005.** Traffic Volume and Highway Permeability for a Mammalian Community in the Canadian Rocky Mountains. *The Canadian Geographer***,** vol. 49, (4), pp. 321-331.
**Tang, K.X., Waters, N.M., 2005.** The Internet, GIS and Public Participation in Transportation Planning, *Progress in Planning*, 64 (1):1-62.
**Bow, J.D., N.M. Waters, P.D. Faris, J.E. Seidel, P.D. Galbraith, M.L. Knudston, W. A. Ghali, and the APPROACH Investigators, 2004**. Accuracy of City Postal Code Coordinates as a Proxy for Location of Residence, *International Journal of Health Geographics*, 3(5): 1-9.
**Seidel, J.E., W.A. Ghali, P.D. Faris, J.D. Bow, N.M. Waters, M.M. Graham, P.D. Galbraith, L.B. Mitchell, and M.L. Knudston, 2004.** Geographical Location of Residence and Uniformity of Access to Cardiac Revascularization Services after Catheterization. *Canadian Journal of Cardiology*, 20(5): 517-523.

***Articles in conference proceedings and other publications***
van Wyngaarden, R. and Waters, N. M. 2007. An Unfinished Revolution: Gaining Perspective on the Future of GIS. Cover article for *GeoWorld*, vol. 20, #9, pp. 22-25.
Moon, S-H. and Waters, N.M., 2004. Solving the City of Calgary High School Location Problem for the Year 2033, Transportation Revolutions, Calgary, Alberta, *Proceedings of the Canadian Transportation Research Forum* (2): 464-478

***Major Oral presentations***
McConnell, S., Hansen, C. and Waters, N. M. 2005. Mapping the Media in the Americas: An Innovative Application of GIS. Paper presented to the Eighth United Nations Regional Cartographic Conference for the Americas, New York City, June 27-July 1, 2005. http://unstats.un.org/unsd/geoinfo/8unrccaIP36.pdf

**Graduate Students Supervised**
Ph.D. In progress: 3; Completed: 11
MA/MSC In progress: 6; Completed: 20
MGIS: In Progress: 1; Completed 28