

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Texas Association of REALTORS®
Petitioner,

v.

POI Search Solutions, LLC
Patent Owner

PETITION FOR *INTER PARTES* REVIEW

OF

U.S. PATENT NO. 8,510,045

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Petitioner Texas Association of REALTORS® (“TAR”) asks that the Board review the accompanying prior art and analysis, institute a trial for *inter partes* review of claims 1-28 of U.S. Patent No. 8,510,045 (“the ’045 Patent”), and render a final written decision canceling those claims as unpatentable.

I. Introduction

The full statement of the reasons for the relief requested is as follows:

A. Summary of Reasons for Requested Relief

The ’045 Patent relates to methods for displaying points-of-interest on digital maps. TAR-1001, Abstract. In general, the ’045 Patent describes methods of identifying search results within an arbitrary region, such as a user-defined polygon, of a digital map. TAR-1001, 1:51-2:15 (Summary of the Invention). The methods claimed by the ’045 Patent, such as claim 1, recite well-known steps, namely, displaying a digital map, receiving a search query, providing results to the search query, receiving input defining a geographic region within the digital map, determining the search results within that geographic region, and displaying only those search results within the geographic region. TAR-1001, 11:64-2:15 (Claim 1). The ’045 Patent claims that the prior art lacked “any way for a user to graphically select a region of a map...and displaying only those POIs that are within the outlined region.” TAR-1001, 1:43-47.

But as evidenced by prior art challenges (*see section IV below*), these

features were all well known in the prior art in 2009 when the application to which the '045 Patent purports to claim priority was filed. Indeed, as early as 2007, a Seattle-based real estate company used polygon drawing tool technology to allow its clients to define an area of interest on a map and only search for real estate listings within that area of interest. TAR-1012, p. 2 (Neighborhood Wizard)¹.

The prior art references cited in this Petition, in combination, render obvious the challenged claims of the '045 Patent. For example, U.S. Patent No. 7,373,246 to O'Clair describes searching for points-of-interest and displaying those points-of-interest on a digital map. TAR-1003, 7:27-42. U.S. Publication No. 2010/0094548 to Tadman describes user-defined destination search areas which may take the form of polygons, and returning search results located within those polygons. TAR-1004, [0053]. Other prior art references, including U.S. Publication No. 2009/0132927 (to Reed et al.) and U.S. Publication No. 2005/0270311 (to Rasmussen et al.) disclose user interface features and image tiling pertinent to some of the other claims.

Consequently, this Petition demonstrates that challenged claims 1-28 simply recite features that were well known in the prior art, and indeed, were described in

¹ As of the filing of the instant Petition, TAR-1012 is cited as prior art against the claims of a pending application which purports to be a continuation-in-part of the '045 Patent.

prior art patents and printed publications before the earliest effective filing date for such claims. The claims are therefore more likely than not rendered obvious over such prior art. Institution on each of the grounds detailed below is appropriate.

B. The '045 Patent

1. Overview

The '045 Patent has 3 independent claims and 25 dependent claims. In general, the '045 Patent describes a method for “displaying points-of-interest on a digital map.” TAR-1001, Abstract.

2. Prosecution History

The '045 Patent issued on August 13, 2013, from U.S. Patent Application No. 12/799,471 (“the '471 application”) filed on April 26, 2010. The '045 Patent claims the priority benefit of U.S. Provisional Application No. 61/284,755 (“the '755 provisional”) filed December 22, 2009. For purposes of this Petition and relative only to the claims challenged herein, Petitioner assumes a priority date no earlier than December 22, 2009, without prejudice to challenges to priority support in other proceedings, or with respect to other claims.

The '471 application was filed with 28 claims. TAR-1002, pp. 29-34. All claims were rejected in a non-final office action as being anticipated by U.S. Publication No. 2006/0200383 to Aruntunian, or obvious over Aruntunian and U.S. Publication No. 2006/0192769 to Pinkus. TAR-1002, pp. 64-75. After an Examiner Interview, Applicants amended the claims and argued, *inter alia*, that

Aruntunian did not allow “displaying additional content **without** changing map’s **current view** or **scale** (i.e., **no zoom**).” TAR-1002, p. 94 (emphasis in original). In response to the Applicants’ Amendment, the Examiner mailed a Notice of Allowance allowing claims 1-28. TAR-1002, p. 111.

II. Identification of Challenges

A. Challenged Claims

Claims 1-28 of the ’045 Patent are challenged in this Petition.

B. Statutory Grounds for Challenges

Challenge #1: Claims 1, 2, 5, and 6 are obvious over U.S. Patent No. 7,373,246 to O’Clair (“O’Clair”) in view of U.S. Publication No. 2010/0094548 to Tadman et al. (“Tadman”). O’Clair was issued May 13, 2008, and for purposes of this Petition is prior art to the ’045 Patent at least under (pre-AIA) 35 U.S.C. § 102(b). Tadman was filed July 9, 2009, claims priority to a provisional filed July 9, 2008, and was published April 15, 2010, and for purposes of this Petition is prior art to the ’045 Patent at least under 35 U.S.C. § 102(e).

Challenge #2: Claims 3-4 are obvious over O’Clair in view of Tadman, further in view of U.S. Publication No. 2009/0153492 to Popp (“Popp”). Popp was published June 18, 2009 on an application filed December 13, 2007, and for purposes of this Petition is prior art to the ’045 Patent at least under (pre-AIA) 35 U.S.C. § 102(a, e).

Challenge #3: Claims 7-10 are obvious over O’Clair in view of Tadman,

further in view of WO 97/48065 to DeLorme (“DeLorme”). DeLorme was published December 18, 1997, and for purposes of this Petition is prior art to the ’045 Patent at least under (pre-AIA) 35 U.S.C. § 102(b).

Challenge #4: Claims 11, 12, and 14-20 are obvious over O’Clair in view of Tadman, further in view of U.S. Publication No. 2009/0132927 to Reed et al. (“Reed”). Reed was published May 21, 2009 on an application filed November 16, 2007, and for purposes of this Petition is prior art to the ’045 Patent at least under (pre-AIA) 35 U.S.C. § 102(a, e).

Challenge #5: Claim 13 is obvious over O’Clair in view of Tadman, in view of Reed, further in view of Popp. O’Clair, Tadman, Reed, and Popp are all prior art as described above.

Challenge #6: Claim 21 is obvious over O’Clair in view of Tadman, in view of Reed, further in view of U.S. Patent No. 6,791,536 to Keely et al. (“Keely”). Keely was issued September 14, 2004, and for purposes of this Petition is prior art to the ’045 Patent at least under (pre-AIA) 35 U.S.C. § 102(b).

Challenge #7: Claims 22 and 25-28 are obvious over O’Clair in view of Tadman, further in view of U.S. Publication No. 2005/0270311 to Rasmussen et al. (“Rasmussen”). Rasmussen was published December 8, 2005, and for purposes of this Petition is prior art to the ’045 Patent at least under (pre-AIA) 35 U.S.C. § 102(b).

Challenge #8: Claims 23-24 are obvious over O’Clair in view of Tadman, in view of Rasmussen, further in view of Popp. O’Clair, Tadman, Rasmussen, and Popp are all prior art as described above.

C. Note Regarding Page Citations

For exhibits that include suitable page, column, or paragraph numbers in their original publication, Petitioner’s citations are to those original page, column, or paragraph numbers and not to the page numbers added for compliance with 37 CFR 42.63(d)(2)(ii).

III. Claim Construction

This petition presents claim analysis in a manner that is consistent with the broadest reasonable interpretation in light of the specification. *See* 37 C.F.R. § 42.100(b); *In re Cuozzo Speed Techs., LLC*, 793 F.3d 1268, 1278-79 (Fed. Cir. 2015). Claim terms are given their ordinary and customary meaning as would be understood by one of ordinary skill in the art, unless the inventor, as a lexicographer, has set forth a special meaning for a term. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). For avoidance of doubt, and relative to the terms explicitly construed below, Petitioner submits that construction would not be materially different under a *Phillips* standard.

A. Claim Term: “*demarcating*” (claim 11)

The Specification does not use the term “*demarcating*.” A dictionary defines “*demarcate*” as “to determine or mark off the boundaries or limits of” something.

TAR-1013 (Random House Webster’s Unabridged Dictionary, Second Edition), p.

5. Petitioner submits that the aforementioned definition should be the broadest reasonable interpretation of the term. This proposed construction is consistent with the term’s usage in the claim, which recites “demarcating a region of the presently displayed portion of the digital map approximately matching the polygonal area defined by the second set of user input.” TAR-1010, ¶¶ 35-36.

B. Claim Term: “*delimiting*” (claim 22)

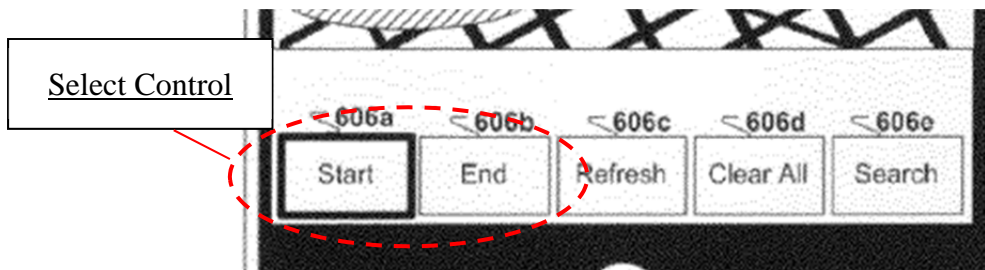
The Specification does not explicitly define the meaning of “delimiting.” However, the Specification provides, as one example, delimiting “in various ways, for example via a perimeter line in any graphical way” and also provides an example of highlighting as delimiting. TAR-1001, 6:34-39; 8:13-19. The above-referenced dictionary provides a definition of “delimit” as “to fix or mark the limits or boundaries of; demarcate.” TAR-1013, p. 4. Accordingly, the term “delimiting” should be construed as “determining or marking off the boundaries or limits of something, such as by providing a perimeter line or highlighting.” TAR-1010, ¶¶ 37-39.

C. Claim Term: “‘*select*’ control” (claim 15, 16, 17)

According to the language of claim 15, the “‘select’ control” must be displayed in association with a digital map. Further, claim 16 recites that a second user input, which defines a polygonal area within a displayed portion of the digital

map, is received in response to a first selection of the “select’ control”. Claim 17, in turn, recites that a third user input, which requests un-suspension of processing of map control commands, is received in response to a secondary selection of the “select’ control”.

The Specification describes that “numerous graphical user interface (‘GUI’) controls 606 a-606 e may be displayed.” However, the Specification does not describe a single GUI control or feature that performs all of the above-mentioned functions of the recited “select’ control”. TAR-1010, ¶ 42. Instead, the Specification describes a “Start” control 606a that appears to correspond to the “select’ control” functionality described with reference to claim 16, and an “End” control 606b that appears to correspond to the “select’ control” functionality described with reference to claim 17. TAR-1010, ¶ 42.



TAR-1001, FIG. 6A (excerpt, annotated)

Accordingly, one of ordinary skill in the art would interpret the “select’ control” term (hereinafter simply “select” control) of claims 15-17 as “one or more GUI controls operable to transition to and from a select mode.” TAR-1010, ¶ 44.

IV. Identification of How the Claims Are Unpatentable

A. Challenge #1: Claims 1, 2, 5, and 6 are obvious over O’Clair in view of Tadman.

Claims 1, 2, 5, and 6 are obvious under 35 U.S.C. § 103(a) over O’Clair in view of Tadman.

O’Clair describes methods and systems for “using boundaries associated with a given map view for retrieving the location of businesses located within the boundaries of the map view.” TAR-1003, 1:8-12. More specifically, O’Clair describes using the boundaries of a map view to “search a corpus of location listings” to identify “businesses...most relevant to a given search query.” TAR-1003, 2:54-59. O’Clair describes, for example, a server providing a map view to a user, accepting search input from the user, and presenting the user with businesses having latitude and longitude information located within the map view presented to the user. TAR-1003, 3:39-58.

Tadman describes “systems and methods for advanced features for online mapping, searching, and planning driving tours.” TAR-1004, Abstract. More specifically, Tadman describes a system which utilizes “a spatial search” which “may be a search or filter based on a shape” such as a “polygon.” TAR-1004, [0053].

A person of ordinary skill in the art would have found it obvious to combine O’Clair with Tadman. TAR-1010, ¶ 50. The two references are in similar fields,

and Tadman refers to Google Maps as an exemplary mapping solution, while O'Clair also refers to Google Maps for local searches. TAR-1004, [0039]; TAR-1003, FIG. 6. A person of ordinary skill in the art would have found it obvious and desirable at the time of the '045 Patent's filing to combine the features of Tadman into O'Clair to achieve, for example, the ability for a "user to conduct a joint query by using both spatial and non-spatial searches" and the other "advanced features" described by Tadman. TAR-1010, ¶¶ 50-51. Combining the teachings of O'Clair and Tadman would have been no more than combining prior art elements according to known methods (e.g., software development) to yield the predictable result of a system which allows the search of points-of-interest within an area defined by a polygon, and would have been obvious at the time of the '045 Patent's priority date. TAR-1010, ¶¶ 50-52.

The following discussion describes how O'Clair in view of Tadman renders obvious each and every limitation of claims 1, 2, 5, and 6.

1. Claim 1

i. Limitation [1.0] "A method of displaying points-of-interest ('POI's) on a digital map"

O'Clair states that "a ranked list of businesses 740 may be provided to the user, with each business in the list including a map identifier, which visually indicates the location of a business on zoom level map view 700." TAR-1003, 7:39-42; *see also* TAR-1003, FIG. 7.

Thus, by displaying businesses with map identifiers on a zoom level map view, O’Clair teaches “a method of displaying points-of interest (‘POI’s) on a digital map” as recited. TAR-1010, p. 21.

ii. *Limitation [1.1] “displaying a digital map within a given view and at a given scale, on a graphical display of an electronic device”*

O’Clair states “a server (not shown) may provide a map document 100 to a user at a client...map document 100 may include a *zoom level view 110* of the geographic location provided by the user...zoom level view 110 may have boundaries that encompass *a specific geographic region at a specific scale.*”² TAR-1003, 3:16-38; *see also* TAR-1003, FIG. 1. O’Clair further states that the client “may include client entities. An entity may be defined as a device, such as a wireless telephone, a personal computer...” and that a client entity may include an “output device...including a display...” TAR-1003, 4:5-10; 5:18-21.

Thus, by providing a map document which includes a zoom level view with boundaries encompassing a geographic region at a specific scale, to a client device such as a wireless telephone or personal computer, O’Clair teaches “displaying a digital map within a given view and at a given scale, on a graphical display of an electronic device” as recited. TAR-1010, pp. 21-23.

² Emphasis added throughout except where noted.

iii. ***Limitation [1.2] “receiving user input containing a search query”***

O’Clair states “[a] search query may be received from the user” and “the user may initiate a search of businesses located within the desired geographic region.” TAR-1003, 6:65-7:4, 3:39-50; *see also* TAR-1003, FIG. 1, FIG. 5.

Thus, by describing the user initiating a search of businesses located within a desired geographic region, O’Clair teaches “receiving user input containing a search query” as recited. TAR-1010, p. 23.

iv. ***Limitation [1.3] “providing one or more search results associated with the search query, the search results containing geographic coordinates”***

O’Clair states “[t]he ranked identified businesses may be provided to the user,” and to do so, “the latitude and longitude coordinates associated with each indexed business that is determined to be relevant to the search query may be compared with the latitudes and longitudes associated with the geographic search area.” TAR-1003, 7:37-42, 7:20-26.

Thus, by providing to the user ranked identified businesses, which are associated with latitude and longitude coordinates, O’Clair teaches “providing one or more search results associated with the search query, the search results containing geographic coordinates” as recited. TAR-1010, pp. 23-24.

v. ***Limitation [1.4] “receiving user input defining a geographic region within the digital map, wherein the geographic region is defined from within the current***

view and current scale of the digital map, and wherein the geographic region is represented by a polygon”

Tadman describes an order of steps, which includes an “initial launch to map results page showing the interactive map graphic” (similar to that of O’Clair) and a subsequent step in which “users can interact with the map via...drawing a custom shape on the map.” TAR-1004, [0036]. Tadman further states “MLS software may include a *polygon tool* that may *enable a user to select an area on a map by creating a polygon and enclosing an area on the map within the polygon.*” TAR-1004, [0069]. Tadman also describes that “the user may create a polygon with a specified number of points.” TAR-1004, [0071]; *see also* FIG. 4.

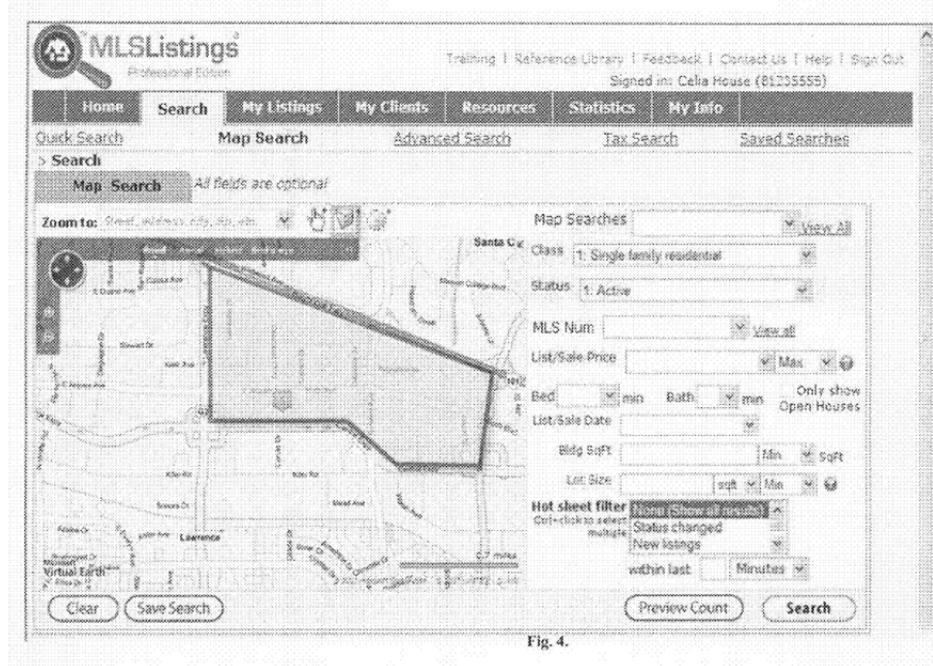


Fig. 4.

TAR-1004, FIG. 4

Thus, by describing software that allows a user to select an area on a displayed map by creating a polygon with a specified number of points, Tadman

teaches “receiving user input defining a geographic region within the digital map, wherein the geographic region is defined from within the current view and current scale of the digital map, and wherein the geographic region is represented by a polygon” as recited. TAR-1010, pp. 24-26.

vi. *Limitation [1.5] “determining the one or more search results whose geographic coordinates are within the user defined geographic region”*

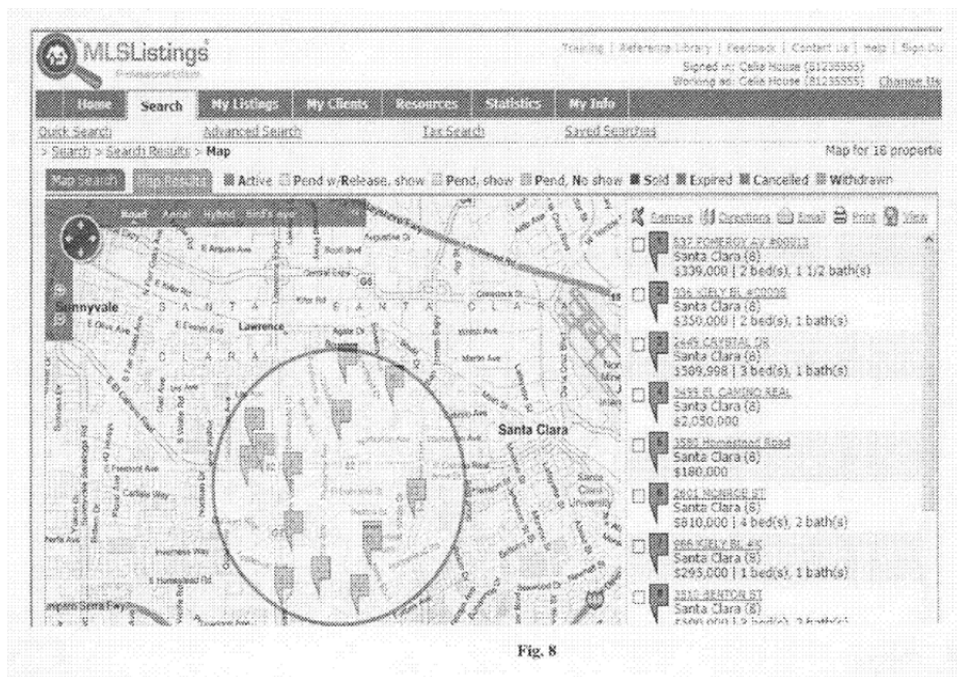
Tadman describes that the “user may be able to search within selected areas for listing results” and the system “may enable a user to select one or more shape[s] on the map to be searched.” TAR-1004, [0081], [0074]. Tadman also describes the use of geographic coordinates, as it describes saving, for example, the “latitude and longitude of each point of the polygon.” TAR-1004, [0146]. O’Clair describes using geographic coordinates to find search results within a region, stating “latitude and longitude coordinates associated with each indexed business that is determined to be relevant to the search query may be compared with the latitudes and longitudes associated with the geographic search area.” TAR-1003, 7:17-26.

Thus, by describing the ability to search within a selected area, such as a polygon, and by teaching the comparison of latitude and longitude for a business with latitudes and longitudes associated with a geographic search area, the combination of Tadman and O’Clair teaches “determining the one or more search

results whose geographic coordinates are within the user defined geographic region” as recited. TAR-1010, pp. 26-27.

vii. *Limitation [1.6] “displaying the determined one or more search results as one or more graphics on the digital map”*

As shown in Tadman’s FIG. 8, the “graphical user interface may display the map search results” and “numbered flags may appear on a map to show the location of the results.” TAR-1004, [0080], [0083]; *see also* [0103] and TAR-1003, FIG. 7.



TAR-1004, FIG. 8

Thus, by describing a graphical user interface that displays map search results as numbered flags, Tadman and O’Clair teach “displaying the determined one or more search results as one or more graphics on the digital map” as recited.

TAR-1010, pp. 27-28.

viii. *Limitation [1.7] “wherein the one or more graphics represent one or more POIs”*

The '045 Patent describes an example POI as “businesses, attractions.”

TAR-1001, 1:58-59. O’Clair describes “entities (e.g., businesses)...relevant to a given search query.” TAR-1003, 2:54-59. Further, one of ordinary skill in the art would understand Tadman’s real estate listings to be points of interest. TAR-1010, p. 27. **Thus**, Tadman and O’Clair’s description of real estate listings and businesses teach “wherein the one or more graphics represent one or more POIs” as recited. TAR-1010, p. 28.

2. *Claim 2*

i. *Limitation [2.0] “The method of claim 1, wherein in response to receiving additional user input defining a secondary geographic region:”*

Tadman describes that “the system may enable a user to select a limited number of shapes on the map, such as three, four, five...or more shapes.” TAR-1004, [0074]. Tadman’s FIG. 5 depicts a “geographic map with discontinuous destination search areas.” TAR-1004, [0073]. Tadman further states “the steps to conduct the search may involve the following: (1) The user may draw a custom polygon on the map...(5) The user can repeat steps 1-4 additional times for multiple shapes.” TAR-1004, [0139].

Thus, by describing multiple search areas defined by shapes or polygons,

Tadman teaches “receiving additional user input defining a secondary geographic region” as recited. TAR-1010, pp. 28-29.

ii. *Limitation [2.1] “determining a new set of one or more search results whose geographic coordinates are within the secondary geographic region”*

Tadman states, as part of the process described in paragraph [0139], repeating the step of “(3) The search may return joint spatial and non-spatial results onto a map results page with the custom polygon outline displayed.” TAR-1004, [0139]. As described above with reference to claim limitation [1.5], O’Clair and Tadman teach determining search results whose geographic coordinates are within a geographic region.

Thus, by describing repetition of the step of searching to return spatial results with the displayed custom polygon outline, Tadman teaches “determining a new set of one or more search results whose geographic coordinates are within the secondary geographic region” as recited. TAR-1010, pp. 29-30.

iii. *Limitation [2.2] “displaying the new set of determined one or more search results as POIs on the digital map”*

As described in the analysis of claim limitation [2.1] above, Tadman describes that the user can repeat the drawing of the custom polygon, and the search returns results onto a map results page with the custom polygon outline displayed. *See also* TAR-1004, FIG. 8. **Thus**, by describing the repetition of the drawing polygon and returning search results steps, Tadman teaches “displaying

the new set of determined one or more search results as POIs on the digital map” as recited. TAR-1010, p. 30.

3. ***Claim 5, Limitation [5.1] “wherein in response to receiving the user input defining the geographic region within the digital map, highlighting the defined geographic region”***

Tadman states “the area defined by the destination search area may be shaded or otherwise visually marked” and depicts such shading, or highlighting, in FIG. 4. TAR-1004, FIG. 4. **Thus**, by describing shading of the destination search area, Tadman teaches “in response to receiving the user input defining the geographic region within the digital map, highlighting the defined geographic region” as recited. TAR-1010, pp. 30-31.

4. ***Claim 6, Limitation [6.1] “wherein in response to receiving the user input defining the geographic region within the digital map, displaying a border outlining the defined geographic region”***

As shown in FIG. 4, Tadman also describes a border outlining the geographic area, stating “a line may be displayed on the map defining the borders.” TAR-1004, [0068]. **Thus**, by describing that a line may be displayed on the map defining the borders of a destination search area, Tadman teaches “in response to receiving the user input defining the geographic region within the digital map, displaying a border outlining the defined geographic region” as recited. TAR-1010, p. 31.

B. Challenge #2: Claims 3-4 are obvious over O’Clair in view of Tadman further in view of Popp.

Claims 3-4 are obvious under 35 U.S.C. § 103(a) over O’Clair in view of Tadman further in view of Popp. The teachings of O’Clair and Tadman are summarized above.

1. *Brief Summary of Popp*

Popp describes an “interactive media display system” which includes “a touch-sensitive display surface configured to display a geographic map and receive a gesture input generated by a user on the touch-sensitive display surface while the geographic map is displayed” to “defin[e] a selected geographic area on the geographic map.” TAR-1005, Abstract.

2. *Reasons to Combine*

One of ordinary skill in the art would have found it obvious to combine O’Clair, Tadman, and Popp. Reasons to combine O’Clair and Tadman are detailed above. O’Clair suggests a touch-screen interface, describing clients “such as a wireless telephone” or “personal digital assistant (PDA).” TAR-1003, 4:5-10. A person of ordinary skill in the art at the time of the ’045 Patent’s invention would understand wireless telephones as having touch-screen interfaces for interacting with mapping applications; for example, the Apple iPhone was released in 2007 with the Google Maps application. TAR-1010, ¶ 56. Similarly, Tadman explicitly describes video displays including “touchpad or touchscreen display[s]” and client

computers that include “any interactive display device...which may include a display and receive input from a user.” TAR-1004, [0025], [0027]. Popp explicitly teaches the use of such touch-screen displays with displayed maps, describing “an interactive media display system 10 including an interactive display device 12 having a touch-sensitive display surface 14 configured to display a geographic map 50 and receive a gesture input 52 generated by a user on the touch-sensitive display surface 14 while the geographic map is displayed.” TAR-1005, [0011]. Popp describes that computing devices may include, like Tadman and O’Clair, PDAs or mobile telephones. TAR-1005, [0043].

A person of ordinary skill in the art would have found it obvious to combine the disclosed computing devices of O’Clair and Tadman with the touch-sensitive display device features of Popp to achieve, for example, the advantages described by Popp, such as “efficiently access[ing] stored media” (e.g., media representing businesses or POIs) “associated with a geographic area, using a gesture input on a geographic map displayed on a touch sensitive display surface.” TAR-1005, [0042]. Combining the references would have been no more than the combination of known elements (e.g., software features) of one geographic information system (GIS) implementation into another GIS implementation according to known methods, and would have been obvious to a person of ordinary skill in the art. TAR-1010, ¶¶ 56-58.

The following discussion describes how O'Clair in view of Tadman further in view of Popp renders obvious each and every limitation of claims 3-4.

3. *Claim 3, Limitation [3.1] “wherein the graphical display is capable of receiving user touch input”*

As described above, Popp describes displaying a geographic map “on a touch-sensitive display surface” which allows a user to “draw[] a manually drawn boundary gesture input 78 encircling” a geographic area. TAR-1005, [0026]. **Thus**, by teaching a touch-sensitive display device, Tadman and Popp teach “the graphical display is capable of receiving user touch input” as recited. TAR-1010, pp. 35-36.

4. *Claim 4, Limitation [4.1] “wherein the user input selecting the geographic region is received via user touch”*

As described above with reference to claim limitation [3.1], Popp describes touch-based user input to select a geographic region. TAR-1005, [0026]. **Thus**, Tadman and Popp teach “the user input selecting the geographic region is received via user touch” as recited. TAR-1010, p. 36.

C. Challenge #3: Claims 7-10 are obvious over O'Clair in view of Tadman further in view of DeLorme.

Claims 7-10 are obvious under 35 U.S.C. § 103(a) over O'Clair in view of Tadman further in view of DeLorme. The teachings of O'Clair and Tadman are summarized above.

1. *Brief Summary of DeLorme*

DeLorme describes a “Computer Aided Routing and Planning System” which “provides an interactive computer travel planning guide for determining a route between a user selected travel origin and travel destination” in which a “user can also select among a plurality of types of geographically locatable points of interest (POIs) within a user-defined region of interest along the travel route.”

TAR-1006, 1:12-20.

2. *Reasons to Combine*

One of ordinary skill in the art would have found it obvious to combine O’Clair, Tadman, and DeLorme. Reasons to combine O’Clair and Tadman are detailed above. Tadman describes an example of “a travel route connecting multiple destinations” which “may indicate a selected start point and may visit each destination marker” and also describes “driving directions.” TAR-1004, [0177]. Tadman further states that MLS software “may include any additional map features known.” TAR-1004, [0183].

DeLorme also describes travel routing and driving directions, and describes an “advantage of [its] invention” in that “travel planning can be optimized in an iterative process” in which “changes in the selected transportation routes, waypoints, and selected POIs” trigger a recalculation of the travel route. TAR-1006, 6:25-32.

A person of ordinary skill in the art would have found it obvious to combine the disclosed routing features of the O’Clair and Tadman combination with the additional routing features of DeLorme, for example, to achieve optimization of travel planning using an iterative process, as described by DeLorme. TAR-1006, 6:25-32; TAR-1010, ¶ 64. Combining the teachings of the references would have been, for example, no more than the incorporation of the known software features of DeLorme into the software implemented system and method taught by O’Clair and Tadman according to known methods (e.g., software development), and would have been obvious to a person of ordinary skill in the art. TAR-1010, ¶¶ 64-65.

The following discussion describes how O’Clair in view of Tadman further in view of DeLorme renders obvious each and every limitation of claims 7-10.

3. *Claim 7, Limitation [7.1] “wherein the geographic region corresponds to a route on the digital map”*

Tadman describes that “MLS software may include mapping” and “a geographic map with a travel route connecting multiple destinations” which a person of ordinary skill in the art would recognize could be based on the user’s geographic region-based search, as described above with reference to challenge #1. TAR-1010, pp. 39-40. Further, DeLorme teaches selecting multiple points for a route on a digital map, which then corresponds to a polygonal area for a point of interest search, stating “CARPS software calculates, delineates and displays a travel route between the travel origin and travel destination via the selected

waypoints” and that the software “permits user selection of an area or region of interest along the user-defined route.” TAR-1006, 8:24-28. The area of interest “may be...a corridor of specified width along the travel route...or regular and irregular polygons.” TAR-1006, 8:14-16.

Thus, by teaching an area or region of interest along a travel route, which may include regular or irregular polygons, Tadman and DeLorme teach “the geographic region corresponds to a route on the digital map” as recited. TAR-1010, pp. 39-40.

4. *Claim 8, Limitation [8.1] “wherein the geographic region is automatically set to include a route and a set amount of additional area adjacent to the route”*

As described above with reference to claim limitation [7.1], DeLorme describes that the user can search for POIs “within a user-defined region of interest along the travel route” using “a line buffer, i.e., a polygonal enclosure which is drawn equidistantly at a specified tangential T distance all around a line segment” such as the route. TAR-1006, 1:18-20, 76:31-77:1.

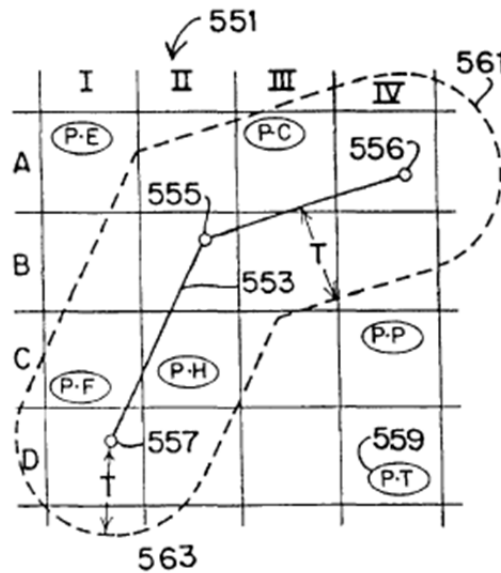


FIG 5B

TAR-1006, FIG. 5B

Thus, by describing the identification of points of interest along a route and within an area defined by a tangential distance all around the route, DeLorme teaches “the geographic region is automatically set to include a route and a set amount of additional area adjacent to the route” as recited. TAR-1010, pp. 40-41.

5. ***Claim 9, Limitation [9.1] “wherein in response to a change in the route on the digital map, the geographic region is updated to include a changed route”***

DeLorme describes that the “the travel route...can be updated or changed according to the user preferences” and that the user can develop, through “multiple interactions and repeated iterations...an individualized or customized travel plan.” TAR-1006, 1:26-29, 23:18-22.

Thus, by describing iterative modification and searching for points of

interest, DeLorme teaches “in response to a change in the route on the digital map, the geographic region is updated to include a changed route” as recited. TAR-1010, pp. 41-42.

6. Claim 10, Limitation [10.1] “wherein the change in the route is invoked by additional input from the user”

As detailed above with reference to claim limitation [9.1], DeLorme describes that the travel route can be updated or changed according to the user’s multiple interactions. **Thus**, by describing user input to update the travel route, DeLorme teaches “the change in the route is invoked by additional input from the user” as recited. TAR-1010, p. 42.

D. Challenge #4: Claims 11, 12, and 14-20 are obvious over O’Clair in view of Tadman further in view of Reed.

Claims 11, 12, and 14-20 are obvious under 35 U.S.C. § 103(a) over O’Clair in view of Tadman further in view of Reed. The teachings of O’Clair and Tadman are summarized above.

1. Brief Summary of Reed

Reed describes the provision of a user interface which includes a view including a map, which may be configured to enable the user to make additions to the map, including polygonal areas of interest. TAR-1007, Abstract, [0114].

2. Reasons to Combine

One of ordinary skill in the art would have found it obvious to combine O’Clair, Tadman, and Reed. Reasons to combine O’Clair and Tadman are detailed

above. Both O'Clair and Tadman describe determining search results based on a geographic location of interest, with Tadman explicitly teaching the use of polygons drawn on a map by the user to identify search results occurring within those polygons. Tadman further describes aspects of its user interface, including a toolbar with buttons for performing certain tasks, which are depicted as a hand shape, a polygon shape, and a circle shape. TAR-1004, FIG. 3, [0059].

Tadman does not explicitly describe the detailed functionality of the toolbar buttons. However, Reed provides such detail. For example, Reed describes a similar hand shape as a “map manipulation selector 220” and several “map addition selectors 222,” one of which is a polygon shape, another of which is a circle shape. TAR-1007, [0114]. Reed further fills in gaps in Tadman with respect to what occurs when each selector is used. TAR-1010, ¶¶ 68-69.

While Tadman does not explicitly describe the details of how a search of a polygonal area on a map is performed, Reed provides such details, describing “the approximating technique performed by the server computer to approximate the latitude and longitude coordinates related to the figure entities drawn on the map.” TAR-1007, [0174]. A person of ordinary skill in the art would understand Reed's description of the approximating techniques as a possible implementation of Tadman's polygonal search capabilities, and would have found it obvious to combine Reed's detailed approximation techniques into Tadman's system.

Combining the teachings of the references would have been, for example, the use or application of a known technique (rectangular approximation of polygons) to a known method (polygon-delimited search) in the same way, and accordingly, the combination of O’Clair, Tadman, and Reed would have been obvious to a person of skill in the art. TAR-1010, ¶¶ 69-71.

3. Claim 11

- i. Limitation [11.0] “A method of displaying points-of-interest (‘POI’s) on a digital map, comprising”**

See above analysis of claim limitation [1.0], as taught by O’Clair.

- ii. Limitation [11.1] “displaying a digital map on a graphical display of an electronic device”**

See above analysis of claim limitation [1.1], as taught by O’Clair.

- iii. Limitation [11.2] “receiving a first user input requesting suspending future processing of map control commands in subsequent user input”**

Tadman describes receiving a first user input in its description of a “user interface” with a navigational bar having “custom shape tools, such as those that may enable a user to create a custom polygon...” TAR-1004, [0063]. However, Tadman does not explicitly disclose “requesting suspending future processing of map control commands in subsequent user input.”

Reed describes such a request to suspend future processing of map control commands. For example, Reed describes its “map manipulation selector 220” which, when enabled, “can be used to drag and drop the map.” TAR-1007, [0164].

Reed uses the phrase “drag and drop” to describe panning a map. TAR-1010, pp. 45-46. Similarly, Tadman states that “a user may be able to pan a map by clicking and dragging...” and further that “[t]he user may pan/drag a map to a desired location...[t]he user may then click on a...polygon tool.” TAR-1004, [0059], [0120].

Reed also details that “[v]arious types of additions can be made to the map depending on the addition selector 222 that is selected. Upon indicating where the additions should be made on the map 213, a command is transmitted to the processor...the processor 130 then responds to the addition command by making an addition to the map 214.” TAR-1007, [0162]. As depicted in FIG. 4, one such addition selector 222 is for “drawing a polygon.” TAR-1007, FIG. 4.

One of ordinary skill in the art would recognize that, when the map manipulation selector 220 is selected, the Reed system processes map control commands, such as panning the map. TAR-1010, p. 47. Further, because Reed teaches that after an addition is made to the map using an addition selector 222, the cursor can be used to pan the map upon selection of map manipulation selector 220, one of ordinary skill in the art would recognize that, when an addition selector 222 is selected, Reed’s system would not process map control commands, as the map manipulation selector 220 would not be selected. Thus, the selection of an addition selector 222, such as the polygon tool, is a request for “suspending future

processing of map control commands in subsequent user input” as recited. TAR-1010, p. 47.

Thus, by describing the operation of toolbar buttons which are selective for respective user interface modes in which controls (1) manipulate (pan) a map, and (2) create additions to the map while panning is disabled, the combination of Tadman and Reed teaches “receiving a first user input requesting suspending future processing of map control commands in subsequent user input” as recited. TAR-1010, pp. 45-47.

iv. *Limitation [11.3] “suspending the future processing of the map control commands”*

As described above with reference to claim limitation [11.2], Reed teaches that when a map addition selector 222 is selected, the map control commands are not processed. Accordingly, the combination of Tadman and Reed teaches “suspending the future processing of the map control commands” as recited. TAR-1010, pp. 47-48.

v. *Limitation [11.4] “receiving a second set of user input, wherein the second set of user input defines a polygonal area within a presently displayed portion of the digital map”*

See above analysis of claim limitation [1.4], as taught by O’Clair and Tadman. Reed also teaches this claim limitation. TAR-1007, [0162], [0170]; TAR-1010, p. 48.

- vi. ***Limitation [11.5] “demarcating a region of the presently displayed portion of the digital map approximately matching the polygonal area defined by the second set of user input”***

As detailed above in the Claim Construction section, “demarcating” should be construed as “determining or marking off the boundaries or limits of something.” The above analysis of claim limitation [6.1] describes how Tadman teaches, in at least FIG. 4, “demarcating a region of the presently displayed portion of the digital map approximately matching the polygonal area defined by the second set of user input” by a line displayed on the map defining the borders of a destination search area. TAR-1004, FIG. 4; TAR-1010, p. 48.

- vii. ***Limitation [11.6] “computing a mathematical representation of the demarcated region, wherein the mathematical representation is based on longitude and latitude coordinates”***

The '045 Patent does not describe any particular mathematical representation or any particular computation of such a mathematical representation. However, a person of ordinary skill in the art would understand that any computer implementation that determines the geometry of a user-defined shape and area within a shape operates to “comput[e] a mathematical representation of the demarcated region” as recited. TAR-1010, p. 49.

In particular, Tadman describes saving “the latitude and longitude of the start of the polygon, and the lengths and/or orientations of the sides, or the latitude

and longitude of each point in the polygon.” TAR-1004, [0146]. Reed describes an approximating technique “to approximate the latitude and longitude coordinates related to the figure entities drawn on the map,” stating “rectangles 590 of varying sizes are used by the server computer to approximate the geometry of the polygon 506.” TAR-1007, [0176]; *see also* TAR-1007, [0174]. One of ordinary skill in the art would recognize that the server computer’s approximation of the geometry of the polygon, as described by Reed, is “a mathematical representation” computed by the server. TAR-1010, pp. 49-50.

Thus, by describing the saving of latitude and longitude coordinates for a polygon, and by describing approximations of polygons using latitude and longitude coordinates, Tadman and Reed teach “computing a mathematical representation of the demarcated region, wherein the mathematical representation is based on longitude and latitude coordinates” as recited. TAR-1010, pp. 49-50.

viii. *Limitation [11.7] “receiving a third user input requesting un-suspending the future processing of the map control commands in subsequent user input”*

Reed describes that the map manipulation selector 220 allows for map control commands, such as panning, stating “[u]pon selection of...the map manipulation selector 220, the cursor 172 reverts to an open hand and can be used to drag and drop the map 214.” TAR-1007, [0164]. The user’s selection of the map manipulation selector teaches the recited “third user input,” and as the input allows

map manipulation, it is a request to un-suspend panning, or processing of the map control commands (referred to as dragging and dropping in Reed). TAR-1010, p. 50.

Thus, by describing a selection of the map manipulation selector, Reed teaches “receiving a third user input requesting un-suspending the future processing of the map control commands in subsequent user input” as recited. TAR-1010, p. 50.

ix. *Limitation [11.8] “un-suspending the future processing of the map control commands”*

As described in Reed, with reference to claim limitation [11.7] above, after being suspended by selection of a map addition selector, the user may select a map manipulation selector; when the user selects the map manipulation selector, the map can be panned, i.e., the cursor “can be used to drag and drop the map.” TAR-1007, [0164]. **Thus**, Reed teaches “un-suspending the future processing of the map control commands” as recited. TAR-1010, p. 50.

x. *Limitation [11.9] “presenting a set of POIs, wherein each POI is represented by longitude and latitude coordinates”*

See above analysis of claim limitation [1.3], as taught by O’Clair.

xi. *Limitation [11.10] “determining from the set of POIs a further subset of POIs, wherein the longitude and latitude coordinates of each of the POIs within the further subset of POIs is determined to be within the computed mathematical representation of the*

demarcated region”

See above analysis of claim limitation [1.5], as taught by O’Clair and Tadman. Further, Reed describes determining search results located within a polygon using rectangles which approximate the geometry of the polygon, or the mathematical representation (*see infra* limitation [11.6]), stating “the search result will be restricted to a geographical location defined by the polygon 506” and “[t]he rectangles 590 define a range of latitude and longitude coordinates [which] allows the server computer system to extract at least one search result from a search data source, wherein the search result possesses latitude and longitude coordinates that are within the range...defined by the rectangles 590.” TAR-1007, [0171], [0174].

Thus, by determining search results that occur within a polygon or displayed area, Tadman, O’Clair, and Reed teach “determining from the set of POIs a further subset of POIs, wherein the longitude and latitude coordinates of each of the POIs within the further subset of POIs is determined to be within the computed mathematical representation of the demarcated region” as recited. TAR-1010, p. 51.

xii. *Limitation [11.11] “displaying the subset of POIs on the digital map”*

See above analysis of limitation [1.6], as taught by O’Clair and Tadman. Reed further teaches this limitation in FIG. 34. TAR-1007, FIG. 34; TAR-1010, p. 51.

4. ***Claim 12, Limitation [12.1] “wherein the map control commands include zooming and panning”***

Tadman describes “features such as zooming, panning, and viewing the map through different views.” TAR-1004, [0059]. **Thus**, by describing a control toolbar with zooming and panning, Tadman teaches “wherein the map control commands include zooming and panning” as recited. TAR-1010, pp. 51-52.

5. ***Claim 14, Limitation [14.1] “wherein a visual indication is displayed to the user indicating a state of operation of the digital map as suspending or un-suspending the future map control commands”***

As shown in FIG. 4 of Tadman, when the user is utilizing the polygon selection tool, the corresponding toolbar icon is outlined. TAR-1004, FIG. 4. Similarly, in Reed, when the user is utilizing a map addition selector, the map addition selector is outlined, and the map manipulation selector is not outlined. *Compare* TAR-1007, FIG. 4, FIG. 32; see also TAR-1010, pp. 52-53.

Thus, by outlining the currently selected tool on the toolbars, Tadman and Reed teach “a visual indication is displayed to the user indicating a state of operation of the digital map as suspending or un-suspending the future map control commands” as recited. TAR-1010, pp. 52-53.

6. ***Claim 15, Limitation [15.1] “wherein a ‘select’ control is displayed in association with the digital map”***

Tadman describes that its polygon search button allows a user to “select a custom shape” such as a “custom polygon.” TAR-1004, [0053]. Reed also states,

with reference to FIG. 32: “Using the map addition selectors 222...the user has drawn various figure elements on the map 214 displayed in the map area 194.” TAR-1007, [0170]. **Thus**, because Tadman teaches that its displayed polygon search button of Fig. 4 allows a user to select a custom polygon, and because Reed states that the map addition selectors allow the user to draw figure elements, Tadman and Reed teach that a “‘select’ control is displayed in association with the digital map” as recited. TAR-1010, pp. 53-55.

7. ***Claim 16, Limitation [16.1] “wherein in response to a first selection of the ‘select’ control, the second user input is received”***

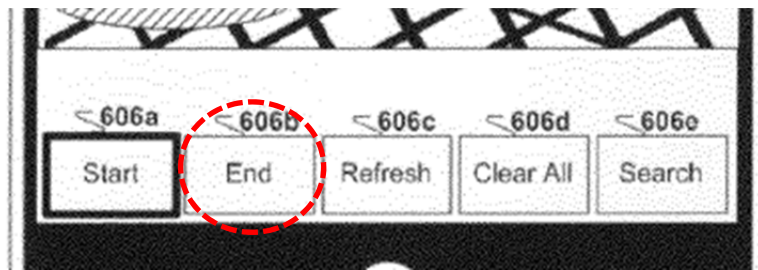
Tadman describes that the “polygon tool...may enable a user to select an area on a map by creating a polygon...” TAR-1004, [0069]. Reed further states, “[u]sing the map addition selectors 222...the user has drawn various figure elements on the map...” TAR-1007, [0170]. A selection of the map addition selector 222 teaches the “first selection of the ‘select’ control” as recited, while the process of drawing figure elements on the map teaches “the second user input is received.” TAR-1010, p. 55.

Thus, by describing that the software has a polygon tool that enables a user to select an area on a map by creating a polygon, and by describing that the user selects the map addition selector to draw figure elements on a map, Tadman and Reed teach “wherein in response to a first selection of the ‘select’ control, the

second user input is received” as recited. TAR-1010, p. 55.

8. Claim 17, Limitation [17.1] “wherein in response to a secondary selection of the ‘select’ control, the third user input is received”

As described above, the ’045 Patent does not explicitly describe a “secondary selection of the ‘select’ control,” as it does not describe a unitary GUI control or feature causing the region selection to start and finish. TAR-1010, ¶ 42. Instead, the ’045 Patent describes and depicts a separate “end” button 606b. TAR-1001, 8:47-58. Reed likewise describes a button to end the region selection, for example, in its description of the map manipulation selector 220 which allows map control commands, such as panning: “[u]pon selection of the...map manipulation selector 220, the cursor...can be used to drag and drop the map...” TAR-1007, [0164].



TAR-1001, FIG. 6A (excerpt, annotated)



TAR-1007, FIG. 4 (excerpt, annotated)

Thus, in a manner analogous to the '045 Patent's "end control," a user's selection of the map manipulation selector after, for example, selecting a polygon using a map addition selector, is a third user input received in response to a selection of a control. Reed therefore teaches "wherein in response to a secondary selection of the 'select' control, the third user input is received" as recited and construed. TAR-1010, pp. 55-57.

9. Claim 18, Limitation [18.1] "wherein a 'clear' control is displayed in association with the digital map"

Both Tadman and Reed describe a "clear" control. Tadman states "a user can click on a button that may erase all the selected areas from a map, leaving it clear for a user to make new selections if the user desires." TAR-1004, [0089], FIG. 3. Reed similarly describes a "clear selector 224" which, upon selection, "remove[s] all additions to the map." TAR-1007, [0163], FIG. 4.

Thus, by describing buttons that may erase selected areas or additions from a map, Tadman and Reed teach "a 'clear' control is displayed in association with the digital map" as recited. TAR-1010, pp. 57-58.

10. Claim 19, Limitation [19.1] "wherein in response to a selection of the 'clear' control, all data received from the second set of user input is discarded"

As described above with reference to claim limitation [18.1], Tadman describes a clear button that may "erase all the selected areas from a map," which a person of ordinary skill in the art would understand as removing the polygonal

areas created by the second set of user input. TAR-1004, [0089]. **Thus**, Tadman teaches “in response to a selection of the ‘clear’ control, all data received from the second set of user input is discarded” as recited. TAR-1010, pp. 58-59.

11. Claim 20, Limitation [20.1] “wherein in response to discarding all the data received from the second set of user input, all POIs displayed on the digital map in response to the second set of data, are deleted from the digital map”

Tadman describes that the aforementioned clear button “erase[s] all selected areas from a map, leaving it clear for a user to make new selections.” TAR-1004, [0089]. One of ordinary skill in the art would understand such a button to return the user to the user interface display of Tadman’s FIG. 3, for example, where no search results are displayed. TAR-1010, p. 59. **Thus**, Tadman teaches “all POIs displayed on the digital map in response to the second set of data, are deleted from the digital map” as recited. TAR-1010, p. 59.

E. Challenge #4: Claim 13 is obvious over O’Clair in view of Tadman in view of Reed, further in view of Popp.

Claim 13 is obvious under 35 U.S.C. § 103(a) over O’Clair in view of Tadman in view of Reed, further in view of Popp. The teachings of O’Clair, Tadman, Reed, and Popp are summarized above.

1. Reasons to Combine

Reasons to combine O’Clair, Tadman, and Popp are detailed above with reference to claims 3-4. Reasons to combine O’Clair, Tadman, and Reed are detailed above with reference to claims 11, 12, and 14-20. A person of ordinary

skill in the art would have found it obvious to combine the teachings of O’Clair, Tadman, and Reed with the teachings of Popp for at least the same reasons as described above with reference to the combination of O’Clair, Tadman, and Popp, e.g., to achieve, for example, the advantages described by Popp, such as “efficiently access[ing] stored media associated with a geographic area, using a gesture input on a geographic map displayed on a touch sensitive display surface.” TAR-1005, [0042]. Combining the references would have been no more than, for example, incorporating software features of a GIS software implementation to add features to another GIS software implementation, or the combination of known elements according to known methods, and would have been obvious to a person of ordinary skill in the art. TAR-1010, ¶¶ 75-77.

The following discussion describes how O’Clair in view of Tadman in view of Reed further in view of Popp renders obvious each and every limitation of claim 13.

2. *Claim 13, Limitation [13.1] “wherein at least one of the first or the second or the third user inputs are touch-based”*

Tadman describes the use of a touch screen as a video display device, as described above with reference to limitation [3.1]. TAR-1004, [0025] (“A user interface...may be shown on a video display... [which] may include a...touchpad or touchscreen display...”). Further, Popp describes displaying a geographic map “on a touch-sensitive display surface” and describes that a user “draws a manually

drawn boundary gesture input...on the geographic map 50 displayed on the touch sensitive display surface.” TAR-1005, [0026]. The second user input of claim 11, from which claim 13 depends, is the input by which the user defines the polygonal area of interest on the displayed portion of the digital map; accordingly, Popp’s description of a manually drawn boundary gesture input corresponds to the second user input. TAR-1010, p. 63. **Thus**, by describing touch screens and manually drawn boundary gesture inputs, Tadman and Popp teach “wherein at least one of the first or the second or the third user inputs are touch-based” as recited. TAR-1010, pp. 62-63.

F. Challenge #5: Claim 21 is obvious over O’Clair in view of Tadman in view of Reed, further in view of Keely.

Claim 21 is obvious under 35 U.S.C. § 103(a) over O’Clair in view of Tadman in view of Reed, further in view of Keely. The teachings of O’Clair, Tadman, and Reed are summarized above.

1. Brief Summary of Keely

Keely describes a method and apparatus for simulating gestures of a pointing device, such as a mouse. Keely describes, for example, detecting whether a stylus is being held down on a touch-sensitive display surface for a threshold amount of time, detecting when the stylus is removed, and responsive to the removal, generating an event representing a right mouse button click. TAR-1008, Abstract.

2. *Reasons to Combine*

One of ordinary skill in the art would have found it obvious to combine the O'Clair, Tadman, and Reed combination with Keely. O'Clair, Tadman, and Reed all describe various user interface features for interacting with a displayed map, with Tadman and Reed specifically describing the use of user interface features for selecting an area on a map image. TAR-1010, ¶ 81.

Tadman suggests the use of “right click functions like ...*edit/reshape*” and also describes that its MLS system may be shown on a video display which includes a “touchpad or touchscreen display.” TAR-1004, [0158], [0025]. Keely describes a problem of touch-sensitive display screens: “mouse gestures are of course easily done with an actual mouse, [but] it is not always convenient for a user to use a mouse with a computer...when using a portable system there may not always be a surface available upon which to place a mouse. Some systems utilize a touch-sensitive display screen with a stylus as an input device...Using the tip of the stylus-type device, there is presently no convenient way to simulate or distinguish between, for example, a right click as opposed to a left click.” TAR-1008, 2:6-27.

Accordingly, Keely suggests that “there is a need for an intuitive way of simulating mouse gestures with the stylus.” TAR-1008, 2:29-32. Thus, Keely describes one aspect of its invention as “simulating gestures of a pointing device,

such as a mouse, trackball, or joystick, by use of a stylus on a touch-sensitive display surface.” TAR-1008, 2:57-60. Keely states that “[a] right click of a mouse may be simulated, e.g., where the user waits until at least the threshold amount of time before removing the stylus.” TAR-1008, 2:65-3:2.

One of ordinary skill in the art would have therefore found it obvious to combine the features of the O’Clair, Tadman, and Reed combination with Keely to achieve the simulation of gestures of a pointing device using a stylus on a touch-sensitive display device or touchscreen display, such as that described by Tadman. The combination would have been no more than the use of the known technique of Keely’s simulation of mouse gestures to improve the touchscreen displays of Tadman, and would have been obvious at the time of the ’045 Patent’s priority date. TAR-1010, ¶¶ 81-83.

3. Claim 21

i. Limitation [21.1] “receiving the first user input via a first touch”

Keely teaches the use of a stylus device to perform a press and hold input gesture to select text or an object on a display device, stating “the computer 201 ...may have the ability to select ink when in pen mode. A user can press and hold, then drag over ink, text, or other objects, within a document to select those objects. A press and hold operation may switch into selection mode...” TAR-1008, 7:58-65. Keely defines the term “stylus” to include “a user’s own finger.” TAR-1008,

5:46-50. **Thus**, Keely’s description of the press portion of the press and hold operation teaches “receiving the first user input via a first touch” as recited. TAR-1010, pp. 66-67.

ii. *Limitation [21.2] “while the first touch persists, treating all successive user touch input as the second set of input”*

The portion of Keely quoted above in the analysis of claim limitation [21.1] further states the user can “press and hold, then drag over...objects...to select those objects. A press and hold operation may switch into selection mode...” TAR-1008, 7:58-65. Selecting objects in Keely is analogous to the user creating the polygon or other shape in Tadman and Reed, i.e., the second set of input. TAR-1010, p. 67. **Thus**, the hold and drag portion of the gestures described by Keely teaches “while the first touch persists, treating all successive user touch input as the second set of input” as recited. TAR-1010, p. 67.

iii. *Limitation [21.3] “when the first touch terminates, treating the first touch termination as the third set of user input”*

Keely states “[w]hen the stylus 204 is eventually removed from the display surface 202, all pending RightMouse events (or other events that represent action by the secondary switch of the pointing device) that would normally have been generated in accordance with the method shown in FIG. 3 would be canceled.” TAR-1008, 7:37-41. **Thus**, by teaching that the removal of the stylus ends pending

mouse events, such as the selection event caused by the press and hold gesture, Keely teaches “when the first touch terminates, treating the first touch termination as the third set of user input” as recited. TAR-1010, p. 67.

G. Challenge #7: Claims 22 and 25-28 are obvious over O’Clair in view of Tadman in view of Rasmussen

Claims 22 and 25-28 are obvious under 35 U.S.C. § 103(a) over O’Clair in view of Tadman, further in view of Rasmussen. The teachings of O’Clair and Tadman are summarized above.

1. Brief Summary of Rasmussen

Rasmussen describes “methods, systems, and apparatus for implementing aspects of a digital mapping system.” TAR-1008, Abstract. In one method, Rasmussen describes “sending a location request from a client-side computing device to a map tile server, receiving a set of map tiles in response to the location request” and thereafter “displaying the result as a map image.” *Id.*

2. Reasons to Combine

One of ordinary skill in the art would have found it obvious to combine the O’Clair, Tadman, and Rasmussen. Reasons to combine O’Clair and Tadman are detailed above. O’Clair, Tadman, and Rasmussen all describe various implementations of digital maps.

Rasmussen acknowledges issues with prior art solutions to digital mapping, and explains that those problems can be overcome by a tiling approach. TAR-

1009, [0010-0012]. Accordingly, Rasmussen describes an implementation of digital maps using map tiles. Rasmussen was filed in 2005; by the time of the '045 Patent's priority date, a person of ordinary skill in the art would have understood that map tiles were the primary method of presenting a digital map to a user. TAR-1010, ¶ 87.

Accordingly, as Rasmussen describes the ability to overcome prior solutions' problems of digital mapping by tiling, and because a person of ordinary skill in the art would have understood that a common approach to providing a digital map solutions was to use map tiles, a person of ordinary skill in the art would have found it obvious apply the map tiling techniques and teachings of Rasmussen to the methods taught by the combination of O'Clair and Tadman described above. Such a combination would have been no more than the use of the known technique of using map tiles to improve the mapping solutions of O'Clair and Tadman, and would have been obvious at the time of the '045 Patent's priority date. TAR-1010, ¶¶ 87-89.

3. Claim 22

- i. *Limitation [22.0] "A method of displaying one or more points-of-interest ('POI's) on a digital map, in conjunction with a free-hand, arbitrary, user-selected geographic region, comprising"***

See above analysis of claim limitations [1.0] and [1.4]. Further, Tadman describes that the user-selected geographic region may be a free-hand region,

stating “custom shapes may include a shape drawn free-hand by a user...which may be similar to a draw function that does not require points of a polygon.” TAR-1004, [0053]. **Thus**, Tadman’s description of the free-hand shape teaches a “method of displaying one or more points-of-interest (‘POI’s) on a digital map, in conjunction with a free-hand, arbitrary, user-selected geographic region” as recited. TAR-1010, p. 70.

ii. *Limitation [22.1] “presenting a digital map on a graphical display of an electronic device, wherein the digital map comprises map tiles and corresponds to a geographic region”*

See above analysis of limitation [1.1], where O’Clair teaches “presenting a digital map on a graphical display of an electronic device.” Further, at the time of the invention, map tiles were a well-known method of generating and displaying digital maps. For example, Rasmussen describes that “maps are displayed by stitching together in the browser a set of pre-rendered ‘tiles’ of map image.” TAR-1009, [0068]. Additionally, Rasmussen states “[o]ne such method includes sending a location request from a client-side computing device” such as O’Clair’s client device “to a map tile server, [and] receiving a set of map tiles in response to the location request...” TAR-1009, [0013], TAR-1010, pp. 70-71.

Thus, O’Clair’s presentation of a digital map in view of Rasmussen’s description of a digital map which is displayed by stitching together tiles of a map image teaches “presenting a digital map on a graphical display of an electronic

device, wherein the digital map comprises map tiles and corresponds to a geographic region” as recited. TAR-1010, pp. 70-71.

iii. *Limitation [22.2] “receiving free-hand user input selecting a portion of the digital map”*

Tadman describes receiving free-hand user input, stating “[t]he user can free-hand a polygon from which to filter property listings...[a] user may free-hand a shape, which may not be a polygon with points, but rather may be a line drawn free-hand.” TAR-1004, [0071]. **Thus**, Tadman’s description of a user free-handing a shape teaches “receiving free hand user input selecting a portion of the digital map” as recited. TAR-1010, p. 71.

iv. *Limitation [22.3] “delimiting the portion of the digital map selected by the user”*

As described above, the broadest reasonable interpretation of “delimiting” is “determining or marking the boundaries or limits of something, such as by providing a perimeter line or highlighting.” TAR-1010, ¶ 39. Tadman describes that “a line may be displayed on the map defining the borders” of a destination search area or “the area defined by the destination search area may be shaded or otherwise visually marked.” TAR-1004, [0068]. **Thus**, by describing a line defining borders and the shading of a destination search area, Tadman teaches “delimiting the portion of the digital map selected by the user” as recited. TAR-1010, p. 71.

v. ***Limitation [22.4] “determining geographic bounds of the portion of the digital map selected by the user”***

Tadman describes that “the latitude and longitude of the start of the polygon, and the lengths and/or orientations of the sides, or the latitude and longitude of each point of the polygon” may be saved, and **thus**, Tadman teaches “determining geographic bounds of the portion of the digital map selected by the user” as recited. TAR-1010, pp. 71-72.

vi. ***Limitation [22.5] “determining geographic coordinates of each POI among a plurality of POIs”***

See above analysis of claim limitation [1.3], as taught by O’Clair.

vii. ***Limitation [22.6] “determining one or more of the POIs from the plurality of POIs whose geographic coordinates are within the determined geographic bounds of the portion of the digital map selected by the user”***

See above analysis of claim limitation [1.5], as taught by O’Clair and Tadman.

viii. ***Limitation [22.7] “displaying a graphic for each of the determined one or more POIs, wherein the displayed graphic is displayed on the digital map at the geographic coordinates of each of the determined one or more POIs.”***

See above analysis of claim limitation [1.6], as taught by O’Clair and Tadman.

4. ***Claim 25, Limitation [25.1] “wherein the portion of the digital map selected by the user is a polygon, the polygon containing more than four sides”***

As shown in FIG. 4, Tadman depicts polygons having more than four sides, including a polygon with six sides. **Thus**, Tadman teaches “the portion of the digital map selected by the user is a polygon, the polygon containing more than four sides” as recited. TAR-1010, p. 73.

1. ***Claim 26***

i. ***Limitation [26.0] “The method of claim 22, wherein in response to receiving additional user input selecting a different region on the digital map, performing the additional steps of”***

Tadman describes modifying the custom shapes, for example, a user may “select a point and click and drag it to a new place to modify the shape of the custom polygon.” TAR-1004, [0088]. Modifying a shape would select a different region on the digital map. TAR-1010, p. 73-74. **Thus**, by selecting a point and clicking and dragging it to a new place to modify the custom polygon, Tadman teaches “receiving additional user input selecting a different region on the digital map” as recited. TAR-1010, pp. 73-74.

ii. ***Limitation [26.1] “delimiting the different region on the digital map, combining the different region with the portion of the digital map selected by the user to form a new selected region”***

As shown in FIG. 5 of Tadman, the user’s custom shapes are delimited. Thus, one of ordinary skill in the art would understand that modifying the shape as

described above with reference to limitation [26.0] would delimit the modified shape. Further, Tadman also describes combining a new selected region with a previously selected region, noting that the “selected shapes may or may not overlap,” thereby creating a new selected region. TAR-1004, [0074], TAR-1010, p. 74. **Thus**, Tadman teaches “delimiting the different region on the digital map, combining the different region with the portion of the digital map selected by the user to form a new selected region” as recited. TAR-1010, p. 74.

iii. *Limitation [26.2] “determining a new set of one or more POIs corresponding with the new selected region”*

Tadman describes that the steps to conduct a search include a search which “may return joint spatial and non-spatial results onto a map results page with the custom polygon outline displayed” and further, that the search step can be repeated “additional times for multiple shapes.” TAR-1004, [0139]. Thus, after the custom shape of Tadman is modified, the user can repeat the search step to return new search results. TAR-1010, pp. 74-75.

Thus, Tadman’s description of the user repeating the search steps for multiple shapes teaches “determining a new set of one or more POIs corresponding with the new selected region” as recited. TAR-1010, pp. 74-75.

iv. *Limitation [26.3] “displaying the new set of one or more POIs on the digital map”*

As described in the analysis of limitation [26.2] above, Tadman describes

that the user can repeat the drawing of the custom polygon on the map, and the search then returns spatial and non-spatial results onto a map results page with the custom polygon outline displayed. *See also* TAR-1004, FIG. 8.

Thus, by teaching the repetition of the drawing polygon and returning search results steps, Tadman teaches “displaying the new set of one or more POIs on the digital map” as recited. TAR-1010, p. 75.

1. Claim 27

- i. Limitation [27.0] “The method of claim 22, wherein in response to receiving additional user input de-selecting a previously-delimited region on the digital map, performing the additional steps of”**

Tadman states that “[a] user may also be able to...remove selected areas from the map.” TAR-1004, [0089]. **Thus**, Tadman teaches “receiving additional user input de-selecting a previously-delimited region on the digital map” as recited. TAR-1010, pp. 75-76.

- ii. Limitation [27.1] “removing graphics indicating the delimiting from the de-selected region on the digital map”**

As Tadman describes “removing selected areas from the map,” as detailed above in limitation [27.0], which areas are normally drawn with a line border and shaded, removal of those areas would remove the line border and shading, or the graphics indicating the delimiting. **Thus**, Tadman therefore teaches “removing graphics indicating the delimiting from the de-selected region on the digital map”

as recited. TAR-1010, p. 76.

iii. *Limitation [27.2] “removing the de-selected region from the portion of the digital map selected by the user to form a new selected region; and”*

Tadman states, “[a]fter selected areas on a map may be modified, a user may perform additional searches within the newly modified selected areas.” TAR-1004, [0089]. Further, as detailed above in limitation [27.1], the de-selected region would no longer be delimited on the map and therefore would be removed from the portion of the digital map selected by the user. TAR-1010, p. 76. **Thus**, by teaching modifications to selected areas, Tadman teaches “removing the de-selected region from the portion of the digital map selected by the user to form a new selected region” as recited. TAR-1010, p. 76.

iv. *Limitation [27.3] “removing one or more POIs on the digital map that are outside the new selected region”*

As described above with reference to limitation [26.2], the user can repeat the search step when shapes are added. One of ordinary skill in the art would understand that the search repetition can occur when shapes are deleted, and search results within those now-deleted shapes would not be returned. TAR-1010, p. 76. **Thus**, by teaching that the user may perform additional searches within newly modified selected areas, Tadman teaches “removing one or more POIs on the digital map that are outside the new selected region” as recited. TAR-1010, p. 76.

1. *Claim 28*

- i. *Limitation [28.0] “The method of claim 22, wherein the step of determining one or more of the POIs whose geographic coordinates are within the portion of the digital map selected by the user, further comprises”*

See above analysis of claim limitation [22.6].

- ii. *Limitation [28.1] “determining one or more of the map tiles that contain the selected region;”*

Rasmussen states “the client computing device transmits the location candidate to a location server...the client uses the received location data to create a tile request.” TAR-1009, [0104]. **Thus**, by describing the client receiving location data to create a tile request, Rasmussen teaches “determining one or more of the map tiles that contain the selected region” as recited. TAR-1010, p. 77.

- iii. *Limitation [28.2] “transmitting the coordinates of the one or more map tiles to a mapping server;”*

Rasmussen describes that “if the tile is not already stored locally, at step 1430 the client retrieves the tile from a tile server.” TAR-1009, [0105]. The request includes coordinates of the map tiles: “the client-side scripts in one embodiment identify each tile separately by a URL that depends only on the coordinate triplet of the tile (e.g., <http://somedomain.com/tiles?x=0&y=0&z=0>).” TAR-1009, [0102]. **Thus**, by describing an HTTP request to a server which has a coordinate triplet of the desired tile, Rasmussen teaches “transmitting the coordinates of one or more map tiles to a map server” as recited. TAR-1010, pp. 77-78.

iv. ***Limitation [28.3] “receiving from the mapping server a new set of one or more POIs whose coordinates are within the coordinates of the map tiles;”***

O’Clair describes that “businesses that lie within the geographic search area may be identified.” TAR-1003, 7:17-26. Rasmussen further describes that such a map is comprised of map tiles and describes the use of a map server: “[g]eomap server 1010 cooperatively communicates with drill-down server 1015, map data storage area 920, location data server 1000, and local search server 1010 to process geographic features such as street addresses, streets, intersections, *points of interest*, cities, neighborhoods, ZIP codes, counties, metropolitan areas, states, and the like...” TAR-1009, [0087]. As detailed above in the analysis of limitations [28.1] and [28.2], the mapping server uses coordinates of the map tiles to send appropriate map tiles to the user.

Thus, by describing the search for businesses within a displayed map, and by describing that the map is comprised of map tiles having map coordinates, O’Clair and Rasmussen teach “receiving from the mapping server a new set of one or more POIs whose coordinates are within the coordinates of the map tiles” as recited. TAR-1010, pp. 78-79.

v. ***Limitation [28.4] “discarding from the new set of one or more POIs all POIs that are not within the selected region”***

Tadman describes filtering search results that are not within the shape,

stating, “[i]n some instances, the default may be filter for search results only within the shape (rather than excluded from the shape).” TAR-1004, [0075]. **Thus**, by describing filtering for search results within the user-defined shape, Tadman teaches “discarding from the new set of one or more POIs all POIs that are not within the selected region” as recited. TAR-1010, p. 80.

H. Challenge #8: Claims 23-24 are obvious over O’Clair in view of Tadman in view of Rasmussen, further in view of Popp.

Claims 23-24 are obvious under 35 U.S.C. § 103(a) over O’Clair in view of Tadman in view of Rasmussen, further in view of Popp. The teachings of O’Clair, Tadman, Rasmussen, and Popp are summarized above.

1. Reasons to Combine

Reasons to combine O’Clair, Tadman, and Popp are detailed above with reference to claims 3-4. Reasons to combine O’Clair, Tadman, and Rasmussen are detailed above with reference to claims 22 and 25-28. A person of ordinary skill in the art would have found it obvious to combine the teachings of O’Clair, Tadman, and Rasmussen with the teachings of Popp for at least the same reasons as described above with reference to the combination of O’Clair, Tadman, and Popp, e.g., to achieve, for example, the advantages described by Popp, such as “efficiently access[ing] stored media associated with a geographic area, using a gesture input on a geographic map displayed on a touch sensitive display surface.” TAR-1005, [0042]. Combining the references would have been no more than the

combination of known elements according to known methods, and would have been obvious to a person of ordinary skill in the art. TAR-1010, ¶¶ 93-95. The following discussion describes how O’Clair in view of Tadman in view of Rasmussen further in view of Popp renders obvious each and every limitation of claims 23-24.

2. Claim 23, Limitation [23.1] “wherein the graphic display is a touch screen.”

See above analysis of claim limitation [3.1], as taught by Tadman and Popp. TAR-1010, p. 83.

3. Claim 24, Limitation [24.1] “wherein the portion of the digital map selected by the user corresponds to a physical area of the graphical display touched by the user”

See above analysis of limitation [3.1], as taught by Tadman and Popp. One of ordinary skill in the art would appreciate that, on an input device such as a touch device, the inputs defining the geographic region would correspond to a physical area of the display screen. TAR-1010, pp. 83-84. Moreover, as shown in FIG. 5 of Popp, the user-drawn boundary 78 corresponds to a physical area on touch screen 14:

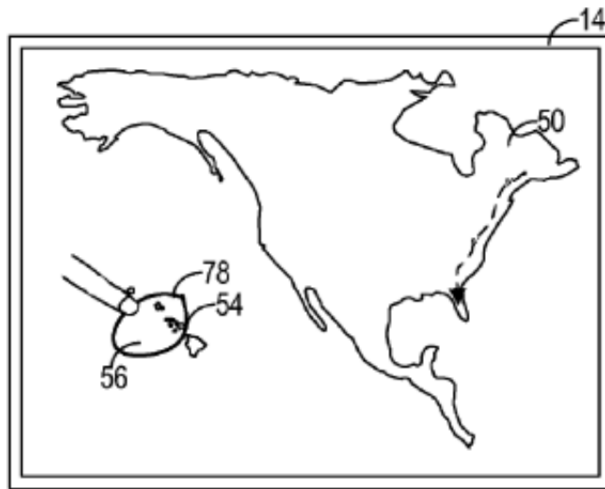


FIG. 5

TAR-1005, FIG. 5

Thus, by depicting a touch device having a finger creating the user-drawn boundary, Popp teaches “the portion of the digital map selected by the user corresponds to a physical area of the graphical display touched by the user” as recited. TAR-1010, pp. 83-84.

V. Conclusion

For the reasons set forth above, Petitioner has established a reasonable likelihood of prevailing with respect to at least one claim of the '045 Patent. Indeed, Petitioner has set forth multiple independent cases that establish a reasonable likelihood of prevailing with respect to all challenged claims of the '045 Patent. Therefore, Petitioner asks that the Patent Office order an *inter partes* review trial and then proceed to cancel claims 1-28.

VI. Grounds for Standing

Petitioner certifies that the '045 Patent is available for *inter partes* review and that Petitioner is not barred or estopped from requesting *inter partes* review challenging the claims on the grounds identified herein. 37 C.F.R. § 42.104(a).

VII. Mandatory Notices (37 C.F.R. § 42.8(b)(1-4))

The real party-in-interest is Petitioner Texas Association of REALTORS® (“TAR”). TAR is a professional membership association consisting of approximately 97,000 members. The members of TAR contribute to a legal fund maintained by TAR, from which the legal expenses and fees for the instant proceeding have been paid. The direction and control of the preparation and filing of the Petition is solely vested in the Executive Board of TAR; the individual members do not direct or control TAR or the filing of this Petition, and the filing of this Petition was not at the behest of any individual member (or members). Accordingly, the over 97,000 individual members of TAR are not real parties-in-interest to this proceeding. The current membership of TAR is attached as Exhibit TAR-1011.

The '045 Patent was previously asserted in *POI Search Solutions, LLC v. Keller Williams Realty, Inc.*, Case No. 2-15-cv-00144 (E.D. Tex. Feb. 4, 2015) and *POI Search Solutions, LLC v. Fathom Realty, LLC*, Case No. 2-15-cv-00143 (E.D. Tex. Feb. 4, 2015). Both cases were dismissed with prejudice. Keller Williams

Realty, Inc. and Fathom Realty, LLC are not real parties-in-interest to this proceeding: neither party is funding, directing, or controlling the filing of this Petition. Moreover, neither party is a privy to the Texas Association of REALTORS®. Regardless, this Petition is filed within one year of the earliest service date of a complaint alleging infringement of the '045 Patent.

Petitioner further identifies the following matter currently active in the USPTO which may affect or may be affected by a decision in the instant proceeding: U.S. Appl. No. 13/987,075, which purports to claim priority to the '471 Application.

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Respectfully submitted,

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PETITIONER'S EXHIBIT LIST

February 11, 2016

TAR-1001	U.S. Patent No. 8,510,045
TAR-1002	Prosecution History of U.S. Patent No. 8,510,045
TAR-1003	U.S. Patent No. 7,373,246 to O'Clair
TAR-1004	U.S. Publication No. 2010/0094548 to Tadman et al.
TAR-1005	U.S. Publication No. 2009/0153492 to Popp
TAR-1006	WO 97/48065 to DeLorme
TAR-1007	U.S. Publication No. 2009/0132927 to Reed et al.
TAR-1008	U.S. Patent No. 6,791,536 to Keely et al.
TAR-1009	U.S. Publication No. 2005/0270311 to Rasmussen et al.
TAR-1010	Declaration of Dr. Michael Goodchild
TAR-1011	List of Texas Association of REALTORS® Members
TAR-1012	Neighborhood Wizard
TAR-1013	Dictionary definitions of "demarcate" and "delimit"