

21 September 2004

LAMI MAPPING COMPONENT (Updated DRAFT VERSION 4)

Below are the draft version 4 electronic map specifications for the 2006 Census Test Address Canvassing operation. These specifications detail Field Division's (FLD's) electronic map requirements for the Hand Held Computers (HHCs) that field staff will use for the Address Canvassing operation during the 2006 Census Test. They provide specific details about the map data, cartographic design, and user interface tools that FLD requires in the mapping component of the Listing and Mapping Instrument (LAMI). We have added performance requirements to all actions where there is an expected wait time. They are depicted in red text for easy reference.

Additional notes about this version (for reviewers):

- Any changes or additions to version 3 specifications (section 0301 only) are in blue font.
- Appendices A, B, C, E, F, and G have been updated.
- Appendix D needs to be updated. The GEO will be providing it soon.
- Requirements 0401.3.4 and 0401.3.6 need to be deleted (requires CCB approval).
- Requirements 0401.5.2 and 0401.5.3 have been combined into 0401.5.2.
- DMD's original 0401.6 (restore linear feature) has been moved to 0401.7.
- The "delete linear feature" requirement was missing from DMD's requirements document and has been added as 0401.6.
- All of section 0401 and appendix I are new.
- Time requirements have not yet been added to section 0401. There is some debate about how these times should be determined (probably requires a meeting).

Please refer questions regarding this document to Warren Drummond (FLD/GSB) at x38638.

2006 Census Test Address Canvassing Operation Electronic Map Specifications (LAMI Mapping Component)

Introduction

During the 2006 Census Test, the Census Bureau will use and evaluate HHCs in decennial data collection activities. Current test plans require field staff use an HHC to conduct the Address Canvassing operation. Field staff conducting the Address Canvassing operation need maps to locate the blocks that they are assigned to canvass and a tool to collect structure point locations (map spots) and update street features, street names, and addresses. For the Address Canvassing operation FLD requires these maps and tools to be included in the mapping component of the LAMI. This mapping system will replace all 11" x 17" paper maps normally used in the field during previous Address Canvassing operations including: assignment area locator maps, assignment area maps, and block maps.

The mapping component of the LAMI shall contain three major components including:

- 1) Geographic input data generated from the TIGER database,
- 2) A cartographic design that will define how this data will appear within the electronic map system, and
- 3) A user interface that will permit the user to manipulate the electronic map view and update features and feature names.

Specification Assumptions:

The specifications for the user interface assume the following:

- The electronic map system requirements for the 2006 Census Test will use a customized version of ESRI's ArcPad software.
- The user interface will incorporate existing ArcPad tools, wherever feasible, to reduce customization burden on the Geography Division (GEO) staff.

The following specifications use the numbering format created by the Decennial Management Division (DMD) during the High Level and Detailed requirements meetings for the 2006 Census Test Address Canvassing operation. There are several appendices containing tables and figures attached to this document. These tables and figures are included to give more detail on certain specifications. The appendix letter and table or figure number are referenced where appropriate.

LAMI – Mapping Component Specifications

0301 - The listing and mapping software shall display a map.

0301.1 - The listing and mapping software shall display data from the BOC's Topologically Integrated Geographic Encoding and Referencing (TIGER) system.

0301.1.1 - The listing and mapping software shall display spatial and non-spatial data.

0301.1.2 - The listing and mapping software shall show a user a predefined geographic area.

Note: Refer to appendix D, table 7 for further details on the map data specifications and to appendix C, tables 3 - 6 for further details on the map cartographic specifications.

0301.1.2.1 – The listing and mapping software shall include static map data for the entire Local Census Office (LCO).

0301.1.2.1.1 – The static map data shall include American Indian Reservation boundary features, labels, and attributes.

0301.1.2.1.2 – The static map data shall include American Indian Tribal Subdivision boundary features, labels, and attributes.

0301.1.2.1.3 – The static map data shall include County boundary features, labels, and attributes.

0301.1.2.1.4 – The static map data shall include Place boundary features, labels, and attributes.

0301.1.2.1.5 – The static map data shall include CLD (Crew Leader District) boundary features, labels, and attributes.

0301.1.2.1.5.1 - The whole CLD layer shall not be visible. Only the boundary of the user’s own CLD shall be displayed via the “Show CLD” tool.

0301.1.2.1.6 – The static map data shall include 2006 Collection Block boundary features, labels, and attributes.

0301.1.2.1.6.1 – The user’s map shall display only those blocks that are included in the user’s AA.

0301.1.2.1.6.2 – The user map shall display the “active” block in a different color than the “inactive” blocks.

0301.1.2.1.7 – The static map data shall include Water features, labels, and attributes.

0301.1.2.1.8 – The static map data shall include Rail features, labels, and attributes.

0301.1.2.1.9 – The static map data shall include Highway features, labels, and attributes.

0301.1.2.2 - The listing and mapping software shall include dynamic map data for the user’s Assignment Area (AA).

0301.1.2.2.1 – The dynamic map data shall include Street (non-highway) features, labels, and attributes.

0301.1.2.2.2 – The dynamic map data shall include Map Spot features, labels, and attributes.

0301.1.2.2.2.1 – The map spot label shall include the map spot number (with leading zeros removed) and, when the map spot represents more than one housing unit, the number of units in parentheses.

0301.1.2.3 - The user shall be able to invoke the listing and mapping software from the Assignment Management tool after selecting an AA.

PERFORMANCE REQUIREMENT: After being called from the AMS, the LAMI shall load with the AA map and allow user interaction in 30 seconds or less.

0301.1.2.4 - The user shall be able to open their map by selecting a block from within their AA.

0301.1.2.4.1 – The user shall be provided with a tool to view and select the available blocks in their AA.

PERFORMANCE REQUIREMENT: After invoking the block list tool from the LAMI tool bar, a list of all available blocks shall be displayed in five seconds or less.

0301.1.2.4.2 – The user shall be able to select an “active” or working block that will open their AA map with the selected block “active”.

PERFORMANCE REQUIREMENT: After selecting a block from the block list and clicking “activate”, the selected block map shall be displayed in 30 seconds or less.

0301.2 - The listing and mapping software shall have basic tools for interacting with the map and spatial data.

Note: Refer to appendix B, table 2 for a layout of the tool buttons associated with the following tool functions.

0301.2.1 - The listing and mapping software shall have the ability to mark/identify one or more geographic features at a time.

0301.2.1.1 – The listing and mapping software shall include a tool that will allow the user to place “marks” on the map. The purpose of this tool is to allow the user to add one or more marker symbols to the map near features that are of interest to them (e.g. map spots, street line segments, street intersections, etc.)

PERFORMANCE REQUIREMENT: After input from the user’s stylus, each mark shall be drawn on the screen in one second or less.

0301.2.1.1.1 – The size of the mark tool symbol shall remain constant. It shall not vary with the scale (amount zoomed in or out) of the map.

0301.2.1.1.2 – The mark tool symbol shall be easily distinguishable from all other symbols (especially map spots).

0301.2.1.1.3 – The mark tool symbol shall appear to be “on top” of the map.

0301.2.1.2 – The listing and mapping software shall include the ability to clear all marks.

PERFORMANCE REQUIREMENT: When the clear marks function is invoked, marks shall be cleared from the user’s map in one second or less.

0301.2.1.3 – The listing and mapping software shall include the ability to show or hide the mark “layer” without losing the marks.

PERFORMANCE REQUIREMENT: Hiding or showing marks shall occur in five seconds or less.

0301.2.2 - The listing and mapping software shall have the ability to zoom in/out to a geographic area of interest.

PERFORMANCE REQUIREMENT: Redisplay of the map, as a result of a zoom (in or out) action, shall occur in ten seconds or less.

0301.2.2.1 – The listing and mapping software shall include the standard ESRI ArcPad “zoom in” function available via the ArcPad toolbar.

0301.2.2.2 – The listing and mapping software shall include the standard ESRI ArcPad “zoom out” function available via the ArcPad toolbar.

0301.2.2.3 – The listing and mapping software shall include the standard ESRI ArcPad zoom to full extent function available via the ArcPad toolbar.

0301.2.2.3.1 – Full extent shall be defined as the minimum scale necessary to display the user’s entire LCO.

0301.2.2.4 – The listing and mapping software shall include a customized “Zoom to CLD” function available via the ArcPad toolbar.

0301.2.2.5 – The listing and mapping software shall include a customized “Zoom to AA” function available via the ArcPad toolbar.

0301.2.2.6 – The listing and mapping software shall include the standard ESRI ArcPad zoom to previous extent (“back”) function available via the ArcPad toolbar.

0301.2.2.7 – The maximum scale (zoom out) of the user’s map shall be limited to the full extent scale as defined above (see specification number **0301.2.2.3.1**).

0301.2.2.8 – The minimum scale (zoom in) of the user’s map shall be limited to the scale of 1:1000.

0301.2.2.9 – The listing and mapping software shall include a customized “Zoom to Selected Feature” function available via the ArcPad toolbar.

0301.2.2.9.1 – When the “Zoom to Selected Feature” tool is initiated, the LAMI shall zoom to the full extent of the selected feature (i.e., street segment, block, or map spot).

0301.2.3 - The listing and mapping software shall have the ability to pan.

PERFORMANCE REQUIREMENT: Redisplay of the map, as a result of a pan action, shall occur in ten seconds or less.

0301.2.3.1 – The listing and mapping software shall include the standard ESRI ArcPad pan function available via the ArcPad toolbar.

0301.2.4 - The listing and mapping software shall have the ability to display attributes about a selected feature (identify).

0301.2.4.1 – The listing and mapping software shall have a customized identify tool with the ability to show, in a moveable dialogue window, attribute information for a street segment, block, or map spot.

PERFORMANCE REQUIREMENT: The LAMI shall take five seconds or less to display results of an identify action.

Note: Refer to appendix E, figures 1 and 2 for a conceptual view of the identify tool pull down menu and results dialogue window.

0301.2.4.1.1 – The attributes displayed for a street segment shall include the address range and full street name.

0301.2.4.1.2 – The attributes displayed for a block shall include the state code, county code, and collection block number and suffix (although, because they are newly renumbered, address canvassing blocks should not have any suffixes.).

0301.2.4.1.3 – The attributes displayed for a map spot shall include the map spot number (with leading zeros removed), street address, location description, map

spot type (i.e., original, collected, deleted, or duplicate), and (for multiunit only) number of units represented by the map spot.

0301.2.4.2 – The identify tool shall allow the user to select the feature type (street, block, or map spot) they intend to identify via a pull down menu.

0301.2.4.2.1 – All identify tools shall have a standardized look (see appendix E, figure 1).

0301.2.4.3 – The identify tool shall require user input (i.e., reselect the proper tool from the identify pull down menu) to change the feature type they wish to identify.

0301.2.4.4 – The identify tool shall show the results (attributes listed above) for an identify action in a moveable pop up dialogue window (see figure 2).

0301.2.4.5 – The identify results dialogue window shall be sized appropriately for the type of identify being performed (i.e., the window shall be just large enough to display the appropriate, typical or average, identify results). To further clarify this specification, the footprint of the block identify window shall be significantly smaller than the street identify window. The map spot identify window shall be the largest. However, all window designs shall conserve space to leave as much of the map visible as practical while still displaying the selected feature attribute information. Room for especially long text (such as a very long street name) may be accommodated via the use of scroll bars as described in the next specification.

0301.2.4.6 – The identify results dialogue window shall include, when necessary, the ability to scroll (horizontally or vertically) to view any text that requires more space than is available in the dialogue window.

0301.2.4.7 – The identify process shall cause the selected feature to be highlighted and easily identifiable. That feature shall remain highlighted until another selection is made, via the identify or find function, or the clear selected function is invoked.

0301.2.5 - The listing and mapping instrument shall have the ability to find/locate specific map data (e.g., map spots, blocks, and streets) within the user's AA.

Note: Refer to appendix F, figures 3 and 4 for a conceptual view of the find tools.

PERFORMANCE REQUIREMENT: All find tools shall take ten seconds or less to search user's AA data and return the results from their query.

0301.2.5.1 – All find tools shall be launched from a drop down list on the tool bar, including unique icons for each tool.

0301.2.5.1.1 – All find tools shall have a standardized look (see appendix F, figure 3).

0301.2.5.2 – The find tools shall allow the user to search for map spot, street, or block features.

0301.2.5.3 – The find tool input screens shall allow the user to input the appropriate search criteria for the chosen feature type (see appendix F, figure 4).

0301.2.5.3.1 – The find map spot input screen shall only allow the user to enter the map spot number (**without the leading zeros**). The state, county, and block codes shall be displayed on the screen but not editable.

0301.2.5.3.2 – The find block input screen shall only allow the user to enter the block number. The state and county codes shall be displayed on the screen but not editable.

0301.2.5.3.3 – The find street input screen shall allow the user to enter the house number and street name.

0301.2.5.3.3.1 - The street name field, on the input screen, shall allow the user to type a new street name or select a street name from a dropdown list of all existing street names in the user’s block.

0301.2.5.3.3.2 – Within the street name field, the user shall be able to edit a street name after selecting it from the dropdown list (e.g. changing “N Pinetree St” to “Pinetree Ln”).

0301.2.5.3.3.3 – An intermediate results window shall list all of the matching address ranges for a find street action.

0301.2.5.3.3.4 – Upon selection of one of the address ranges in intermediate results window, the software shall return the user to the map with that street segment highlighted and centered (and “zoomed to” if that option has been checked).

PERFORMANCE REQUIREMENT: Upon selecting an address range and invoking a confirming action (e.g., clicking an “OK” button), the user shall be returned to the map with the selected street segment highlighted in ten seconds or less.

0301.2.5.4 – A wildcard shall be assumed at the end of the entered text. For example, if the street name in the find street tool is entered as “pin”, the software shall find “Pine”, “Pinetree”, “Pinochle”, etc.

0301.2.5.5 – The default display result of a selected feature shall be to center on the selected feature.

0301.2.5.6 – All find tools shall include an option to “zoom to selected feature” (see appendix F, figure 4).

PERFORMANCE REQUIREMENT: The “find” performance requirements stated above apply regardless of the state of the “zoom to selected feature” option.

0301.2.5.6.1 – The default shall be off (or unchecked) for the “zoom to selected feature” option.

0301.2.5.7 – The selected feature, a result of find (or identify), shall be easily distinguishable from all other features.

0301.2.5.8 – The selected feature, a result of find (or identify), shall remain distinguishable from other features until another feature is selected or the selection is cleared.

0301.2.6 - The listing and mapping software shall have the ability to turn on/off the display of specified features (including any associated labels).

Note: Refer to appendix A, table 1 for further details on the tools description and to appendix B, table 2 for further details on the tool layout.

0301.2.6.1 – The listing and mapping software shall include a tool to show/hide the user’s CLD boundary.

PERFORMANCE REQUIREMENT: The LAMI shall take five seconds or less to show or hide a CLD boundary.

0301.2.6.1.1 – The status of the CLD boundary (shown or hidden) shall be reflected in the depiction of the show/hide CLD icon.

0301.2.6.2 – The listing and mapping software shall include a tool to show/hide the user’s AA boundary.

PERFORMANCE REQUIREMENT: The LAMI shall take five seconds or less to show or hide an AA boundary.

0301.2.6.2.1 – The status of the AA boundary (shown or hidden) shall be reflected in the depiction of the show/hide AA icon.

0301.2.6.3 – The listing and mapping software shall include a tool to show/hide map spots (and their labels).

PERFORMANCE REQUIREMENT: The LAMI shall take five seconds or less to show or hide map spots.

0301.2.6.3.1 – The status of the map spots (shown or hidden) shall be reflected in the depiction of the show/hide map spot icon.

0301.2.6.3.2 – The show/hide option shall be disabled (button grayed out) if the map is zoomed out beyond the visible scale range for the map spot layer.

0301.2.7 - The listing and mapping software shall have the ability to turn on/off specified labels.

Note: Refer to appendix A, table 1 for further details on the tools description and to appendix B, table 2 for further details on the tool layout.

0301.2.7.1 – The listing and mapping software shall include a tool to show/hide street labels.

PERFORMANCE REQUIREMENT: The LAMI shall take five seconds or less to show or hide street labels.

0301.2.7.1.1 – The status of the street labels (shown or hidden) shall be reflected in the depiction of the show/hide street label icon.

0301.2.7.1.2 – The show/hide option shall be disabled (button grayed out) if the map is zoomed out beyond visible scale range for the street labels.

0301.2.8 - The listing and mapping software shall have the ability to display a map legend.

PERFORMANCE REQUIREMENT: The LAMI shall take two seconds or less to open or close the map legend.

Note: Refer to appendix G, figure 5 for a conceptual view of the map legend.

0301.2.8.1 – When launched by the user, the listing and mapping software shall display the map legend in a standalone window.

0301.2.9 - The listing and mapping software shall display a map title and bar scale.

0301.2.9.1 – The map display shall include a bar scale in feet/miles.

0301.2.9.2 – The title of the open map (i.e., the filename) shall be displayed in a unobtrusive location.

0301.2.9.3 – The map title shall be displayed in a popup box when the user selects “About LAMI” from the LAMI toolbar. Additionally, this popup box shall display the user’s active block number and the LAMI version number.

0301.2.10 - The listing and mapping software toolbars shall be locked in position on the screen. They shall not be moveable by the user.

0301.2.11 – The bottom gray status bar in ArcPad shall be hidden.

0301.2.12 – The map display shall not include a north arrow. In ArcPad north is always at the center top of the display screen.

0301.2.13 – The listing and mapping software shall have the ability to refresh the map display.

0301.3 - The listing and mapping software shall identify and display the address record(s) associated with a selected map spot and vice versa.

0301.3.1 – A map spot selected by the user shall cause the associated address record(s) in the address list to be highlighted and vice versa.

0301.4 - The listing and mapping software shall display collected linear features and collected map spots (GPS or manual).

0301.4.1 - The listing and mapping software shall uniquely display map spots based on the source of the coordinates making up the map spot.

0301.4.2 - The listing and mapping software shall display one map spot per structure (except where a map spot is determined in the field to be a duplicate).

0301.4.3 – Collected map spots shall immediately replace the corresponding original map spots on the map.

PERFORMANCE REQUIREMENT: Map spot color shall change to match its status (i.e., original, collected, deleted, or duplicate.) in one second or less.

0301.4.4 – Collected map spots shall be indicated on the map by a unique symbol color.

0301.4.5 – Duplicate and deleted map spots shall be indicated on the map using a gray map spot symbol.

PERFORMANCE REQUIREMENT: When address record(s) are marked for deletion or marked as a duplicate, the associated map spot shall change to gray in one second or less.

0301.4.6 – Map spots that represent more than one address (multiunit structures) shall include the number of units in parentheses in the map spot label, immediately following the map spot number.

0301.4.6.1 – The number of units in the map spot label shall be immediately updated with any corresponding changes to the address list.

PERFORMANCE REQUIREMENT: The LAMI shall update the number of units in the map spot label in one second or less.

0301.4.7 - The listing and mapping software shall uniquely display GPS collected linear features (i.e., GPS collected street segments) so they are distinguishable from original street segments.

0301.5 - The listing and mapping software shall display the “You are Here” indicator (see appendix F, figure 4).

PERFORMANCE REQUIREMENT: The “You are Here” indicator shall display on the map in two seconds or less.

0301.5.1 - The LAMI shall have the ability to turn the GPS “auto-pan” function on or off. Note: The built-in auto-pan forces the map to re-center around “You are Here” indicator when the indicator passes beyond the margins of the user’s map. This re-centering becomes a severe annoyance when the user wants to zoom in to an area on the map, to the point where the “You are Here” indicator would be outside of the maps margins.

0301.5.2 - The GPS error message “No Current Position Fix Available” shall be permanently disabled on the LAMI at all times.

0301.6 - The listing and mapping software shall have the ability to display a map “help” screen.

PERFORMANCE REQUIREMENT: The LAMI shall display the help screen in two seconds or less.

0301.6.1 – The help screen shall provide a brief description for all of the tools available in the toolbar of the LAMI.

0301.6.1 – The help screen shall provide a link labeled “Address List Tools and Functions” to a help page(s) with concise information on all of the tools and functions in the address listing component of the LAMI (see appendix I of the LAMI 4.0 listing specifications).

0401 - The listing and mapping software shall have the ability to update the map.

TIME REQUIREMENT: Time requirements for this section have not been determined at this point.

0401.3 - The listing and mapping software shall have the ability to collect linear features.

0401.3.1 - The listing and mapping software shall have the ability to collect linear features using GPS.

0401.3.1.1 - GPS street collection shall be initiated from an icon named “Add Street” in a street editing group of pull down icons on the toolbar (see Appendix I, figure 7).

0401.3.1.2 - Upon initiating GPS street collection, the user shall be presented with a popup window in which they must enter a street name or click cancel (see Appendix I, figure 8).

0401.3.1.2.1 - The popup window shall allow the user to type a new street name or select a street name from a dropdown list of all existing street names in the user’s block (see Appendix I, figure 8).

0401.3.1.2.1.1 – Within the popup window, the user shall be able to edit a street name after selecting it from the dropdown list (e.g. changing “N Pinetree St” to “Pinetree Ln”).

0401.3.1.2.1.2 – The LAMI shall always have “Unnamed Rd” as the first selection in the street name dropdown list.

0401.3.1.2.1.2 – The LAMI shall not allow “blank” entries in the street name field. If attempted, the LAMI shall produce an error message stating, “You may not leave the street name field blank”. That error message shall include an “OK” button to close it and return to the street name popup box.

0401.3.1.2.2 - After the user has entered a street name, the LAMI will ask them to confirm the new entry by tapping “Yes” or “No”. Tapping “No” will return the user to the street name entry window (see Appendix I, figure 8).

0401.3.1.2.3 - If the action is canceled, no information shall be recorded on the LAMI.

0401.3.1.3 - After the user selects “Yes” in the street name confirmation popup box, the LAMI shall store the user entered street name and verify that the GPS hardware is working.

0401.3.1.4 - If the GPS hardware is not working, an error message shall display, instructing the user to check the GPS hardware (see Appendix I, figure 9).

0401.3.1.4.1 - If the GPS hardware problem cannot be corrected, the user shall be required to tap “Cancel” to close the GPS hardware error message box. A second message shall display informing the user that the street name has been saved but GPS collection is not possible. To close that window the user shall tap “OK” and be returned to their map (see Appendix I, figure 9).

0401.3.1.5 - If GPS hardware is functioning properly, the LAMI shall verify/search for a “TBD amount of time” for a good GPS signal (see Appendix I, figure 9).

0401.3.1.5.1 - If a good signal is not found, a message shall display informing the user that the street name has been saved but GPS collection is not possible. To close that window the user shall tap “OK” and be returned to their map (see Appendix I, figure 9).

0401.3.1.6 - If a good GPS signal is available, the user shall be presented with a full screen graphic interface named “Start Street Collection” (see Appendix I, figure 10).

0401.3.1.6.1 - The “Start Street Collection” graphic interface shall allow the user to start the GPS street collection by tapping anywhere on the screen (except the cancel button) or cancel the process by tapping the cancel button.

0401.3.1.6.2 - The “Start Street Collection” graphic interface shall include a cancel button.

0401.3.1.6.3 - If the GPS street collection is cancelled at this point, the LAMI shall display a message informing the user that the new street name has been saved but no line has been added to the map (see Appendix I, figure 10).

0401.3.1.7 - Immediately after the user starts the GPS street collection, the screen shall change to a full screen graphic interface named “Stop Street Collection” (see Appendix I, figure 10).

0401.3.1.7.1 - While the “Stop Street Collection” graphic interface is active, which is during GPS street collection, the HHC shall emit a

periodic audible sound (beep) indicating that GPS street collection is in progress.

0401.3.1.7.2 - The “Stop Street Collection” graphic interface shall allow the user to stop the GPS street collection by tapping anywhere on the screen.

0401.3.1.8 - Immediate after the user has stopped the GPS street collection, the LAMI shall determine whether a valid street has been collected.

0401.3.1.9 - If no points were collected due to GPS failure (hardware failure or loss of signal) or because all the points fall outside of the active block, the LAMI shall display a message informing the user that the street name has been saved but no line has been added to the map. The message box header shall indicate which problem prevented the street from being collected (see Appendix I, figure 10).

0401.3.1.10 - If the GPS street collection is successful, the LAMI shall temporarily turn off the GPS auto-pan function and guide the user through a series of steps to select the starting and ending points of the line the have just collected.

0401.3.1.10.1 - In the first step, the LAMI shall present the new street to the user and instruct them to zoom in to the beginning of the street (see Appendix I, figure 11).

0401.3.1.10.1.1 - The user shall be returned to the LAMI map, panned and zoomed to the full extent of the street just collected.

0401.3.1.10.1.2 - The newly collected street shall be shown with both line segments and vertices visible.

0401.3.1.10.1.3 - The user shall be presented with a moveable popup box informing them to zoom in to the beginning area of the new street.

0401.3.1.10.1.4 - During this step, only the zoom in, zoom out, and pan tools shall be available in the toolbar, all other tools shall be temporarily disabled.

0401.3.1.10.1.5 - The user shall be required to tap “Continue” on the popup message box to move on to the next step.

0401.3.1.10.2 - In the second step, the LAMI shall instruct the user to select (tap) the starting point on the new street and confirm their selection (see Appendix I, figure 11).

0401.3.1.10.2.1 - During this step, all tools in the toolbar shall be disabled.

0401.3.1.10.2.2 - The user shall be presented with a moveable popup box instructing them to tap the starting point of the new street and tap “Continue” after they have done so.

0401.3.1.10.2.3 - The “Continue” button shall be available only after the starting point has been selected.

0401.3.1.10.2.4 - The user shall be required to select a point on the line within the active block. Any attempt to select a point on the line outside of the active block shall activate a warning message informing the user to select a point within the active block.

0401.3.1.10.2.5 - When the user taps the screen to choose a starting point (within the block), the nearest vertex on the line shall be highlighted and the “Continue” button shall become available.

0401.3.1.10.2.6 - The user may reselect a different starting point prior to tapping the “Continue” button.

0401.3.1.10.2.7 - The user shall be required to tap “Continue” on the popup message box to move on to the next step.

0401.3.1.10.3 - In the third step, the LAMI shall again present the new street to the user and instruct them to zoom in to the ending of the street (see Appendix I, figure 11).

0401.3.1.10.3.1 - The user shall be returned to the LAMI map, panned and zoomed to the full extent of the street just collected.

0401.3.1.10.3.2 - The newly collected street shall be shown with both line segments and vertices visible.

0401.3.1.10.3.3 - The user shall be presented with a moveable popup box informing them to zoom in to the ending area of the new street.

0401.3.1.10.3.4 - During this step, only the zoom in, zoom out, and pan tools shall be available in the toolbar, all other tools shall be temporarily disabled.

0401.3.1.10.3.5 - The user shall be required to tap “Continue” on the popup message box to move on to the next step.

0401.3.1.10.4 - In the last step, the LAMI shall instruct the user to select (tap) the ending point on the new street and confirm their selection (see Appendix I, figure 11).

0401.3.1.10.4.1 - During this step, all tools in the toolbar shall be disabled.

0401.3.1.10.4.2 - The user shall be presented with a moveable popup box instructing them to tap the ending point of the new street and tap “Continue” after they have done so.

0401.3.1.10.4.2 - The “Continue” button shall be available only after the ending point has been selected.

0401.3.1.10.4.3 - The user shall be required to select a point on the line within the active block. Any attempt to select a point on the line outside of the active block shall activate a warning message informing the user to select a point within the active block.

0401.3.1.10.4.4 - When the user taps the screen to choose an ending point (within the block), the nearest vertex on the line shall be highlighted and the “Continue” button shall become available.

0401.3.1.10.4.5 - The user may reselect a different ending point prior to tapping the “Continue” button.

0401.3.1.10.4.6 - The user shall be required to tap “Continue” on the popup message box to move on to the next step.

0401.3.1.11 - After both the starting and ending points have been selected and the user has tapped continue, the LAMI shall save the portion of the line that falls between the starting and ending points and is within the active block. All other parts of the line shall be discarded (see Appendix I, figures 17 and 18).

0401.3.1.11.1 – While the LAMI is constructing the newly collected street, it shall display a message box indicating that it is processing (see Appendix I, figure 12).

0401.3.1.11.2 – The LAMI shall save any line that has been “broken” by the block boundary as a single discontinuous feature. This situation may occur if a GPSed street meanders in and out of the user’s active block (see Appendix I, figure 18).

0401.3.1.12 - Upon completing the above processing, the LAMI shall automatically select, and zoom to the extent of, the newly added street (just as it

does when a “find street” is performed). After which, a message box shall open informing that the street has been added (see Appendix I, figure 12).

0401.3.1.12.1 - The message box shall show the name of the newly added street (e.g. “Pine Street” has been added to your map).

0401.3.1.13 - Upon closing the message box, the user shall be returned to their map and the auto-pan function returned to its previous state.

0401.3.2 - The listing and mapping software shall display collected linear features.

0401.3.2.1 - Added streets and their labels shall be draw on the map using a different color (color TBD) than original streets. All of their other cartographic qualities shall be identical to that of the original streets.

0401.3.3 - The listing and mapping software shall provide a mechanism to visually distinguish added features (See requirement 0401.3.2.).

~~**0401.3.4** - The listing and mapping software shall have the ability to undo the collection of linear features.~~

~~**0401.3.4.1** - The listing and mapping software shall have the functionality to undo the collection of linear features after initiating the action and prior to completing the assignment.~~

0401.3.5 - The listing and mapping software shall have the ability to associate attributes/metadata to linear features.

~~**0401.3.6** - The listing and mapping software shall have the ability to snap newly added linear features to existing linear features.~~

0401.3.7 - The listing and mapping software shall have standardized legal values available when adding GPSed linear features. When a situation occurs for which the standardized legal values are insufficient, the software/system shall allow the user to enter ad hoc data.

0401.4 - The listing and mapping software shall have the ability to select/deselect linear features (points and lines).

0401.4.1 - The LAMI shall allow the user to select a street line segment

0401.4.2 - The user shall be required to select a street segment prior to performing an editing operation (delete street, edit street name, or restore deleted street) on that street segment.

0401.4.3 - The user shall initiate street line segment selection by tapping an icon named “Select Street” in a street editing group of pull down icons on the toolbar (see Appendix I, figure 7).

0401.4.4 - After the user has tapped the “Select Street” icon, the LAMI shall display a message box that instructs the user to tap the street segment on the map that they wish to select and then tap the “Continue” button (see Appendix I, figure 13).

0401.4.4.1 - The “Continue” button shall be disabled (gray out) until a street segment has been selected.

0401.4.4.2 - The message box shall remain displayed until the user taps either “Continue” or “Cancel”.

0401.4.4.3 - The message box shall have a “Cancel” button that will cancel the selection activity.

0401.4.5 - The LAMI shall prevent the user from selecting a street segment outside of the active block.

0401.4.6 - The LAMI shall select the street segment nearest the user’s input (tap) and highlight that street segment.

0401.4.7 - The user may reselect a different street segment prior to tapping the “Continue” button.

0401.4.8 - When the user selects a street segment and taps “Continue”, the message box shall close, the street segment shall remain selected, the user shall be returned to the map, and the editing tools in the toolbar become enabled.

0401.5 - The listing and mapping software shall have the ability to update road feature names (for roads collected via GPS).

0401.5.1 - The listing and mapping software shall have the ability to select road features for update (see specifications under 0401.4).

~~**0401.5.2** - The listing and mapping software shall have the ability to add names to road features in defined fields.~~

~~**0401.5.2.1** - The listing and mapping software shall have the ability to change existing road feature names in defined fields.~~

0401.5.2 - The listing and mapping software shall have the ability to edit street feature names in a defined field.

0401.5.2.1 - The LAMI shall allow the user to edit (add or change) the street name of a street segment feature.

0401.5.2.2 - The user shall be required to select a street segment prior to editing a street name.

0401.5.2.3 - The LAMI shall allow only one street segment's name to be edited at a time.

0401.5.2.4 - The user shall initiate street name editing by tapping an icon named "Edit Street Name" in a street editing group of pull down icons on the toolbar (see Appendix I, figure 7).

0401.5.2.5 - After the user has tapped the "Edit Street Name" icon, the LAMI shall display a popup box that displays the current name of the selected street segment in an editable field and allows them to either change it manually or choose from a list of all available street names associated with the active block. The popup box shall also have "Continue", "Cancel", and "Restore Original Street Name" buttons (see Appendix I, figure 14).

0401.5.2.5.1 - The "Continue" button shall be grayed out until the user has made a change to the street name.

0401.5.2.5.2 - Unnamed Rd shall always be included as the first choice in the street names dropdown list.

0401.5.2.5.3 - Street names in the street name dropdown list shall include original names, edited names, added names, deleted names, and street names without linear components.

0401.5.2.5.4 - Street names shall not appear in the list more than once.

0401.5.2.5.5 – Within the popup box, the user shall be able to edit a street name after selecting it from the dropdown list (e.g. changing "N Pinetree St" to "Pinetree Ln").

0401.5.2.5.6 - The LAMI shall not allow blank entries in the name field. If attempted, the LAMI shall produce an error message stating, "You may not leave the street name field blank". That error message shall include an "OK" button to close it and return to the street name popup box.

0401.5.2.5.7 - When the user taps the "Restore Original Street Name" button, the street name in the street name field shall revert back to the original name of the street (when data was loaded onto the device). If the user is editing an added street (GPSed), the restore option will not be available and the button will be grayed out.

0401.5.2.5.8 - When the user taps the “Cancel” button the LAMI shall close the popup window and make no street name changes.

0401.5.2.5.9 - When the user has finished editing the street name, and taps the “Continue” button, the LAMI shall update the name for the street segment and close the edit street name popup box.

~~**0401.5.3** - The listing and mapping software shall have the ability to remove road feature name data from defined fields.~~

0401.5.4 - The listing and mapping software shall have the ability to undo the update of road feature names (see 0401.5.2.5.7).

0401.5.5 - The listing and mapping software shall have the functionality to undo the update of road feature names after initiating the action and prior to completing the assignment (see 0401.5.2.5.6).

0401.6 - The listing and mapping software shall have the ability to delete linear features.

0401.6.1 - The LAMI shall allow the user to delete an individual street segment.

0401.6.2 - The user shall be required to select a street segment prior to deleting it (see 0401.4).

0401.6.3 - The LAMI shall allow only one street segment to be deleted at a time.

0401.6.4 - The user shall initiate the delete street segment function by tapping an icon named “Delete Street” in a street editing group of pull down icons on the toolbar (see Appendix I, figure 7).

0401.6.5 - During this process the GPS auto-pan function shall be automatically turned off.

0401.6.6 - After the user has tapped the “Delete Street” icon, the LAMI shall display a moveable popup box that shows the name of the selected street and asks the user to confirm its deletion (see Appendix I, figure 15). The LAMI shall also zoom to the full extent of the selected street to show the user the street segment they are about to delete.

0401.6.7 - The delete street popup box shall contain a button labeled “Yes, Delete” and one labeled “No, Do Not Delete” (see Appendix I, figure 15).

0401.6.8 - When the user confirms the deletion, by tapping the “Yes, Delete” button, the LAMI shall delete the street segment, close the popup box, return the user to the map, and set the auto-pan function to its previous state.

0401.6.8.1 - If the user added the just deleted street, via GPS, the LAMI shall permanently remove it. It will not be restorable.

0401.6.8.2 - If the street was an original street from TIGER, the LAMI shall flag the line as a deleted street. The street and its label shall be displayed on the map in a different color/symbol than non-deleted streets and it will be unselected.

0401.6.9 - When the user taps “No, Do Not Delete”, the LAMI shall close the popup box, return the user to the map with the street segment still selected, and set the auto-pan function to its previous state.

0401.7 - The listing and mapping software shall have the ability to restore linear feature.

0401.7.1 - The LAMI shall allow the user to restore deleted street segments that originated from TIGER.

0401.7.2 - The user shall be required to select a deleted street segment, using the select street tool, prior to restoring it (see 0401.4).

0401.7.3 - The LAMI shall allow only one street segment to be restored at a time.

0401.7.4 - The user shall initiate the restore street segment function by tapping an icon named “Restore Deleted Street” in a street editing group of pull down icons on the toolbar (see Appendix I, figure 7).

0401.7.5 - During this process the GPS auto-pan function shall be automatically turned off.

0401.7.6 - After the user has tapped the “Restore Deleted Street” icon, the LAMI shall display a moveable popup box that shows the name of the selected deleted street and asks the user to confirm the restoration of that selected deleted street (see Appendix I, figure 16). The LAMI shall also zoom to the full extent of the selected deleted street to show the user the street segment they are about to restore.

0401.7.7 - The restore street popup box shall contain a button labeled “Yes, Restore” and one labeled “No, Do Not Restore” (see Appendix I, figure 16).

0401.7.8 - When the user confirms the restoration, by tapping the “Yes, Restore” button, the LAMI shall restore the deleted street segment back to its undeleted state, close the popup box, unselect the street segment, return the user to the map, and set the auto-pan function to its previous state.

0401.7.9 - When the user taps “No, Do Not Restore”, the LAMI shall close the popup box, unselect the still deleted street segment, return the user to the map, and set the auto-pan function to its previous state.

This page intentionally left blank.

Appendix A

User Interface Functions and Tools

Table 1 lists the tools that FLD requires in the user interface of ArcPad. Items highlighted in yellow are new or changed tools for the 2006 Census Test. Items in blue font are new for version 4.

Table 1 - Tools Required for the 2004 Census Test User Interface				
Tool Name	Tool Description	Tool Source	Priority	Additional Programming Needed
Block List	Opens block list utility for activating, switching, or completing a block. <i>(Note: for details, refer to Address List component specifications provided by Andrea Johnson.)</i>	New Tool	High	Yes
QC Function	Allows QC user to access QC tools in LAMI when they open a block <i>(Note: for details, refer to Address List component specifications provided by Andrea Johnson.)</i>	New Tool	High	Yes
Electronic Legend	Allows user access to an electronic map legend	Based on 2004 Tool	Low	Yes
Help	Allows user access to basic help screen.	Based on 2004 tool	Low	Yes
About LAMI	Includes map title (AA), active block number, and LAMI version.	New Tool	Low	Yes
Exit	Exits ArcPad	As is in ArcPad 6.0.3	High	No
Show CLD	Shows/hides a visible polygon of the user's CLD boundary	New Tool	Medium	Yes but based on 2004 "Show Workload" tool.
Show AA	Shows/hides a visible polygon of the user's AA boundary	New Tool	Medium	Yes but based on 2004 "Show Workload" tool.
Show Active Block	Shows/hides a visible polygon of the user's active block boundary	New Tool	Medium	Yes but based on 2004 "Show Workload" tool.

Zoom In	Zoom into map view	As is in ArcPad 6.0.3	High	No
Zoom Out	Zoom out from map view	As is in ArcPad 6.0.3	High	No
Pan	Shifts map view on screen	As is in ArcPad 6.0.3	High	No
Back	Goes back to previous map view (note: list “Back” first in drop down list and make it the default view)	As is in ArcPad 6.0.3	Med	No
Zoom to Full Extent	Zoom out to the full extent of the map view	As is in ArcPad 6.0.3	High	No
Zoom to CLD	Zoom to active Crew Leader District	Based on 2004 tool	Medium	Probably
Zoom to AA	Zoom to active Assignment Area	New tool	High	Yes
Zoom to Selected	Zoom to the selected feature	New tool	High	Yes
Refresh	Redraws screen when user receives Redraw interrupted by user error	As is in ArcPad 6.0.3	Low	No
Street Label Toggle	Allows user to turn street labels on and off when selected	Based on 2004 tool	Medium	No
Map Spot Toggle	Toggles Map Spots (including Map Spot labels) on and off to aid in map view congestion	Based on 2004 tool	Medium	No
Find Map Spot	A modification of the existing ArcPad Find functionality to find a specific map spot	Modification of 2004 tool	High	Yes (needs “zoom to selected” feature added)
Find Block	A modification of the existing ArcPad Find functionality to find a specific census block	Modification of 2004 tool	High	Yes (needs “zoom to selected” feature added)
Find Street	A modification of the existing ArcPad Find functionality to find a specific street	Modification of 2004 tool	High	Yes (needs “zoom to selected” feature added)
Identify Map Spot	Allows user to identify map spots when selected	Modification of 2004 tool	High	Yes
Identify Block	Allows user to identify blocks when selected	Modification of 2004 tool	High	Yes
Identify Street	Allows user to identify streets when selected	Modification of 2004 tool	High	Yes
Clear Selected	Clears any selected items on the screen	As is in ArcPad 6.0.3	High	No

Marker Toogle	Shows/hides the marker layer	New Tool	Medium	Yes
Add Marker	Activates the tool to add “markers” to the map	New Tool	Medium	Yes
Clear Marks	Clears all “markers” from screen	New Tool	Medium	Yes
Select Street	Allows user to select a street segment for editing	New Tool	High	Yes
Add Street	Allows user to initiate the add street editing function	New Tool	High	Yes
Delete Street	Allows user to initiate the delete street editing function	New Tool	High	Yes
Edit Street Name	Allows user to initiate the edit street name editing function	New Tool	High	Yes
Restore Deleted Street	Allows user to initiate the restore deleted street editing function	New Tool	High	Yes
GPS Active	Activates/deactivates GPS Indicator within map view. Allows user to see “you are here” indicator on map view	As is in ArcPad 6.0.3	High	No
GPS AutoPan On	Turns on the GPS autopan.	New Tool	High	Yes
GPS AutoPan Off	Turns off the GPS autopan.	New Tool	High	Yes
Address List	Open Address list table	New Tool	High	Yes

Appendix B

Custom Toolbar Layout

Arrange the tool icons in the toolbar configuration as shown in the table below. Items with numbers indicate that there is a drop down menu on the right side of the tool button. Items new or changed are in blue.

2004 Census Test ArcPad Toolbar Layout:

Table 2 - Toolbar 1							
A	B	C	D	E	F	G	H
1. Block List ¹ 2. QC Function ⁵ 3. Legend 4. Help 5. About LAMI 6. Exit	Show Tools ² 1. Show AA ⁴ 2. Show CLD ⁴ 3. Show Active Block ⁴	Zoom In	Zoom Out	Pan	1. Back Arrow ¹ 2. Full Extent 3. Zoom to AA 4. Zoom to CLD 5. Zoom to Selected 6. Refresh	Street Name Toggle ³	Map Spot Toggle ³

Toolbar 2						
I	J	K	L	M	N	O
Find Tools ² 1. Map Spot ⁴ 2. Block ⁴ 3. Street ⁴	Identify Tools ² 1. Map Spot ⁴ 2. Block ⁴ 3. Street ⁴	Clear Selected	1. Marker Toggle ^{1,3} 2. Add Marker ⁴ 3. Clear Markers	1. Select Street ¹ 2. Add Street 3. Delete Street 4. Edit Street Name 5. Restore Deleted Street	1. GPS Activate ¹ 2. GPS AutoPan On ⁴ 3. GPS AutoPan Off ⁴	Address List

¹ This item shall always be locked at the top of the toolbar pulldown list.

² The item listed below, when selected, shall move to the top main toolbar view.

³ These icons shall appear recessed when active, grayed out, when unavailable, and normal when available but not active.

⁴ These icons shall be outlined with a "red" box in the dropdown list when they are active.

⁵ Note: for details on QC Function, refer to Address List component specifications provided by Andrea Johnson.

Appendix C

Cartographic Specifications - The Geography Division's Cartographic Products Management Branch provided the following cartographic specifications on July 8th, 2004. This represents the latest information to date on the cartographic design.

Cartographic Symbolization Specification, HHC-LAMI, Version 3.1 (Delivery 1)

Table 1 Polygons			Polygon Characteristics								Layer Scale Range Don't Show Layer When Zoomed AA = AA Scale BB = Block Scale		Label Characteristics						Label Scale Range Don't Show Label When Zoomed AA = AA Scale BB = Block Scale	
Polygon Layers	Layer Subtype	Selection Status	Outline Style	Outline Width (points)	Outline Color (R,G,B)	Fill Polygons	Fill Type	Fill Color (R,G,B)	Show Layer	Layer Scale Dependent	In Beyond 1:	Out Beyond 1:	Show Label?	Label Scale Dependent	Display Field	Label Font	Label Size (points)	Label Color (R,G,B)	In Beyond 1:	Out Beyond 1:
American Indian Reservation	Reservation	N/A	solid	3	56,168,0	No	N/A	N/A	Yes	No	N/A	N/A	Yes	No	NAME	Arial	8	56,168,0	N/A	N/A
	Trustland	N/A	solid	1	56,168,0	No	N/A	N/A	Yes	No	N/A	N/A	Yes	No	NAME	Arial	8	56,168,0	N/A	N/A
American Indian Tribal Subdivision	N/A	N/A	dash	1	56,168,0	No	N/A	N/A	Yes	No	N/A	N/A	Yes	No	NAME	Arial (Italic)	8	56,168,0	N/A	N/A
AA Polygon	N/A	Not Selected	N/A	N/A	N/A	No	N/A	N/A	No	No	N/A	N/A	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Selected	solid	5	195,0,195	No	N/A	N/A	Yes	No	N/A	N/A	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A
CLD Polygon	N/A	Not Selected	N/A	N/A	N/A	No	N/A	N/A	No	No	N/A	N/A	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Selected	solid	5	0,0,255	No	N/A	N/A	Yes	No	N/A	N/A	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2006 Collection Block	Active Block	Not Selected	solid	1	255,255,255	Yes	solid	255,255,128	Yes	No	N/A	N/A	Yes	Yes	BLOCK	Arial	10	135,135,0	N/A	1.15 x AA
		Selected	solid	5	0,255,255	Yes	solid	255,255,128	Yes	No	N/A	N/A	Yes	Yes	BLOCK	Arial	10	135,135,0	N/A	1.15 x AA
	Inactive Block	Not Selected	solid	1	255,255,255	Yes	solid	150,255,150	Yes	No	N/A	N/A	Yes	Yes	BLOCK	Arial	10	135,135,0	N/A	1.15 x AA
		Selected	solid	5	0,255,255	Yes	solid	186,255,186	Yes	No	N/A	N/A	Yes	Yes	BLOCK	Arial	10	135,135,0	N/A	1.15 x AA
Water Polygon	N/A	N/A	solid	0.4	166,208,255	Yes	stipple	166,208,255	Yes	No	N/A	N/A	Yes	Yes	H2_NAME	Arial (Italic)	8	99,184,214	N/A	500000

Table 2 Lines			Line Characteristics						Layer Scale Range Don't Show Layer When Zoomed AA = AA Scale BB = Block Scale		Label Characteristics						Label Scale Range Don't Show Label When Zoomed AA = AA Scale BB = Block Scale	
Line Layers	Layer Subtype	Selection Status	Line Style	Line Width (points)	Line Color (R,G,B)	Show Layer	Layer Scale Dependent	In Beyond 1:	Out Beyond 1:	Show Label?	Label Scale Dependent	Display Field	Label Font	Label Size (points)	Label Color (R,G,B)	In Beyond 1:	Out Beyond 1:	
Highway Line	N/A	N/A	solid	1.5	0,0,0	Yes	No	N/A	N/A	Yes	Yes	HWY_NAME	Arial	10	0,0,0	N/A	75000	
Street Line	N/A	N/A	solid	0.5	127,127,127	Yes	Yes	N/A	1.15 x AA	Yes	Yes	STR_NAME	Arial	8	0,0,0	N/A	1.15 x AA	
Roadname Table	N/A	Not Selected	solid	0.5	0,0,0	Yes	Yes	N/A	1.15 x AA	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
		Selected	solid	4	0,255,255	Yes	Yes	N/A	1.15 x AA	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
County Line	N/A	N/A	solid	7	178,178,178	Yes	No	N/A	N/A	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Place Line	N/A	N/A	solid	2.5	255,191,191	Yes	No	N/A	N/A	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Water Line	Perennial	N/A	solid	0.4	166,208,255	Yes	Yes	N/A	75000	Yes	Yes	H1_NAME	Arial (Italic)	8	99,184,214	N/A	30000	
	Intermittent	N/A	dash	0.4	166,208,255	Yes	Yes	N/A	75000	Yes	Yes	H1_NAME	Arial (Italic)	8	99,184,214	N/A	30000	
Rail Line	N/A	N/A	dash	0.4	178,178,178	Yes	No	N/A	N/A	Yes	Yes	RR_NAME	Arial (Italic)	8	178,178,178	N/A	75000	

Table 3 Labels		Polygon Characteristics								Layer Scale Range Don't Show Layer When Zoomed		Label Characteristics						Label Scale Range Don't Show Label When Zoomed	
Label Layers	Selection Status	Outline Style	Outline Width (points)	Outline Color (R,G,B)	Fill Polygons	Fill Type	Fill Color (R,G,B)	Show Layer	Layer Scale Dependent	In Beyond 1:	Out Beyond 1:	Show Label?	Label Scale Dependent	Display Field	Label Font	Label Size (points)	Label Color (R,G,B)	In Beyond 1:	Out Beyond 1:
County Label	N/A	N/A	N/A	N/A	No	N/A	N/A	No	No	N/A	N/A	Yes	No	COU_NAME	Arial (bold)	10	156,156,156	N/A	N/A
Place Label	N/A	N/A	N/A	N/A	No	N/A	N/A	No	No	N/A	N/A	Yes	Yes	PLC_NAME	Arial	8	255,89,89	15000	75000

Table 4 Points		Point Characteristics										Layer Scale Range Don't Show Layer When Zoomed AA = AA Scale BB = Block Scale		Label Characteristics						Label Scale Range Don't Show Label When Zoomed AA = AA Scale BB = Block Scale	
Points Layer	Point Type	Deletion Status	Selection Status	Marker Symbol	Outlined?	Outline Color (R,G,B)	Fill Points	Fill Color (R,G,B)	Size (points)	Show Layer	Layer Scale Dependent	In Beyond 1:	Out Beyond 1:	Show Label	Label Scale Dependent	Display Field	Label Font	Label Size (Points)	Label Color (R,G,B)	In Beyond 1:	Out Beyond 1:
Marker Point	marker	N/A	N/A	Star	Yes	0,0,0	Yes	255,116,57	9	Yes	No	N/A	N/A	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Map Spot	Original Map Spot	D1,D2,N,U	Not Selected	Circle	No	N/A	Yes	178,178,178	3	Yes	Yes	N/A	1.15 x BB	Yes	Yes	MS_LABEL	Arial Black	8	0,0,0	N/A	1.15 x BB
			Selected	Circle	Yes	0,255,255	Yes	178,178,178	5	Yes	Yes	N/A	1.15 x BB	Yes	Yes	MS_LABEL	Arial Black	8	0,0,0	N/A	1.15 x BB
		Other Than D1,D2,N,U	Not Selected	Circle	No	N/A	Yes	0,92,230	3	Yes	Yes	N/A	1.15 x BB	Yes	Yes	MS_LABEL	Arial Black	8	0,0,0	N/A	1.15 x BB
			Selected	Circle	Yes	0,255,255	Yes	0,92,230	5	Yes	Yes	N/A	1.15 x BB	Yes	Yes	MS_LABEL	Arial Black	8	0,0,0	N/A	1.15 x BB
	Collected Map Spot	D1,D2,N,U	Not Selected	Circle	No	N/A	Yes	178,178,178	3	Yes	Yes	N/A	1.15 x BB	Yes	Yes	MS_LABEL	Arial Black	8	0,0,0	N/A	1.15 x BB
			Selected	Circle	Yes	0,255,255	Yes	178,178,178	5	Yes	Yes	N/A	1.15 x BB	Yes	Yes	MS_LABEL	Arial Black	8	0,0,0	N/A	1.15 x BB
		Other Than D1,D2,N,U	Not Selected	Circle	No	N/A	Yes	230,25,51	3	Yes	Yes	N/A	1.15 x BB	Yes	Yes	MS_LABEL	Arial Black	8	0,0,0	N/A	1.15 x BB
			Selected	Circle	Yes	0,255,255	Yes	230,25,51	5	Yes	Yes	N/A	1.15 x BB	Yes	Yes	MS_LABEL	Arial Black	8	0,0,0	N/A	1.15 x BB

Appendix D

Map Data Specifications – The Geography Division’s Spatial Data Software Branch provided the following map data specification on July 7th, 2004. This represents the latest information to date on this data.

2006 Census Test HHC Shape-file Data Layer Summary Table

Author: Jay E. Spurlin
Created: April 27, 2004
Version: 2.1 (draft for LAMI-v2.0)
Last Revised: July 7, 2004

Table of Contents:

Layers:.....	31
AA Polygon	31
Address	31
Address List	31
American Indian Reservation	34
American Indian Tribal Subdivision.....	34
CLD Polygon	35
2006 Collection Block	35
County Label.....	35
County Line	36
Highway Line.....	36
Map Spot.....	36
Place Line.....	37
Place Polygon.....	37
Rail Line.....	37
Roadname Table	37
Road Names	38
Street Line.....	38
Water Line	38
Water Polygon	38
Notes:	39

Layers:

Table 7

Layer Name	AA Polygon	Assignment Area boundaries		
Feature Class	N/A			
Extent	LCO			
Shape	Polygon			
File Name(s)	smap_aa_polygon_<LLLL>.shp smap_aa_polygon_<LLLL>.shx smap_aa_polygon_<LLLL>.dbf			
Attributes	FID		int	1
	Shape		var	
	OPCODE	Field Operation Code	char	2
	LCO	Local Census Office code	char	4
	AACODE	Assignment Area code	char	4
	HIGHLIGHT	Highlight flag, initialize to 0	int	1

Layer Name	Address	Address Range table		
Feature Class	A1* - A7*			
Extent	Collection block			
Shape	NONE			
File Name(s)	dmap_addr_<LLLL><SS><CCC><BBBBB>.shp dmap_addr_<LLLL><SS><CCC><BBBBB>.shx dmap_addr_<LLLL><SS><CCC><BBBBB>.dbf			
Attributes	TLID		int	1
	NNCHAR		char	4
	POSC1L		int	1
	POSC2L		int	1
	POSC3L		int	1
	POSC4L		int	1
	POSC1R		int	1
	POSC2R		int	1
	POSC3R		int	1
	POSC4R		int	1
	LFROM		int	1
	LTO		int	1
	RFROM		int	1
	RTO		int	1
	MOD_FLAG	A (Added), D (Deleted), M (Modified), or blank	char	1

Layer Name	Address List			
Feature Class	N/A			
Extent	Collection Block			
Shape	NONE (linked to MAPSPOT layer)			
File Name(s)	al_addrlist_<LLLL><SS><CCC><BBBBB>.dat			
Attributes	ADDR_ID	Unique address identifier.	int	1

	RO_CODE	Regional Office Code	char	2
	ST	State FIPS code	char	2
	PST	Postal state abbreviation	char	2
	LCO	Local Census Office	char	4
	COU	County FIPS code	char	3
	COU_NAME	County name	char	30
	TRACTBAS	Tract code	char	4
	TRACTSUF	Tract suffix	char	2
	CLD	FOSD + Crew Leader District	char	4
	AA	Assignment Area	char	4
	BLOCK	2006 Collection block	char	5
	BLOCKSUF	2006 Collection block suffix	char	1
	MSNUMBAS	Map spot number base	char	4
	MSNUMSUF	Map spot number suffix	char	1
	MSNUM	Map spot number	char	5
	ACTIONCODE	Operation Action Code	char	2
	SURV_ID	Survivor Identifier	char	4
	MAIL_HSENUM	House number	char	10
	MAIL_PRE_DIR	Prefix direction	char	2
	MAIL_PRE_TYPE	Prefix type	char	4
	MAIL_STREETNAME	Street name	char	40
	MAIL_SUF_TYPE	Suffix type	char	4
	MAIL_SUF_DIR	Suffix direction	char	2
	MAIL_STREET_EXT	Street extension	char	3
	MAIL_STR_LABEL	Street name (concatenated)	char	60
	MAIL_WS_DESC	Within structure descriptor	char	12
	MAIL_WS_ID	Within structure identifier	char	12
	MAIL_WS_LABEL	Within structure (concatenated)	char	24
	MAIL_ZIPCODE	City Style Zip Code	char	5
	RR_DESC	RR Descriptor	char	4
	RR_ID	RR ID	char	4
	BOX_DESC	Box / P O Box Descriptor	char	6
	BOX_ID	Box / P O Box ID	char	10
	LOC_ZIPCODE	Non-City Style Zip Code	char	5
	LOCDESC	Location description	char	100
	HUOLQ_STAT	HU / OLQ Status	char	1
	GQ_NAME	GQ Name	char	100
	QC_STATUS	QC Status	char	1
	QC_ACTCODE	QC Action Code	char	1
	MAF_ID	MAF Identifier	char	12
	SURVMAF_ID	Surviving MAF Identifier	char	12
	GPS_MANUAL	GPS / Manual Flag	char	1
	RES_STAT	Residential Status	char	2
	HU_TYPE	Housing Unit Type	char	1
	CS_LOC	City Style Location Flag	char	1
	NCS_MAIL	Non-City Style Mail Flag	char	1
	CS_MAIL	City Style Mail Flag	char	1
	MS_EDIT	Map Spot Collection Indicator { G (GPS), M (Manual), O (Original), or blank}	char	1

	SURV_ID_FLAG	Flag used to identify Surviving Records	int	12
	MAIL_NCS	Concatenated Field containing RR Desc, RR ID, Box/POBox Desc, Box/POBox ID	char	24
	LOC_HSENUM	House number	char	10
	LOC_PRE_DIR	Prefix direction	char	2
	LOC_PRE_TYPE	Prefix type	char	4
	LOC_STREETNAME	Street name	char	40
	LOC_SUF_TYPE	Suffix type	char	4
	LOC_SUF_DIR	Suffix direction	char	2
	LOC_STREET_EXT	Street extension	char	3
	LOC_STR_LABEL	Street name (concatenated)	char	60
	LOC_WS_DESC	Within structure descriptor	char	12
	LOC_WS_ID	Within structure identifier	char	12
	LOC_WS_LABEL	Within structure (concatenated)	char	24
	ADDR_ID_O	Original Unique address identifier.	int	1
	RO_CODE_O	Original Regional Office Code	char	2
	ST_O	Original State FIPS code	char	2
	PST_O	Original Postal state abbreviation	char	2
	LCO_O	Original Local Census Office	char	4
	COU_O	Original County FIPS code	char	3
	COU_NAME_O	Original County name	char	30
	TRACTBAS_O	Original Tract code	char	4
	TRACTSUF_O	Original Tract suffix	char	2
	CLD_O	Original FOSD + Crew Leader District	char	4
	AA_O	Original Assignment Area	char	4
	BLOCK_O	Original 2006 Collection block	char	5
	BLOCKSUF_O	Original 2006 Collection block suffix	char	1
	MSNUMBAS_O	Original Map spot number base	char	4
	MSNUMSUF_O	Original Map spot number suffix	char	1
	MSNUM_O	Original Map spot number	char	5
	ACTIONCODE_O	Original Operation Action Code	char	2
	SURV_ID_O	Original Survivor Identifier	char	4
	MAIL_HSENUM_O	Original House number	char	10
	MAIL_PRE_DIR_O	Original Prefix direction	char	2
	MAIL_PRE_TYPE_O	Original Prefix type	char	4
	MAIL_STREETNAME_O	Original Street name	char	40
	MAIL_SUF_TYPE_O	Original Suffix type	char	4
	MAIL_SUF_DIR_O	Original Suffix direction	char	2
	MAIL_STREET_EXT_O	Original Street extension	char	3
	MAIL_STR_LABEL_O	Original Street name (concatenated)	char	60
	MAIL_WS_DESC_O	Original Within structure descriptor	char	12
	MAIL_WS_ID_O	Original Within structure identifier	char	12
	MAIL_WS_LABEL_O	Original Within structure (concatenated)	char	24
	MAIL_ZIPCODE_O	Original Non-City Style Zip Code	char	5
	RR_DESC_O	Original RR Descriptor	char	4
	RR_ID_O	Original RR ID	char	4
	BOX_DESC_O	Original Box / P O Box Descriptor	char	6
	BOX_ID_O	Original Box / P O Box ID	char	10

	LOC_ZIPCODE_O	Original City Style Zip Code	char	5
	LOCDESC_O	Original Location description	char	100
	HUOLQ_STAT_O	Original HU / OLQ Status	char	1
	GQ_NAME_O	Original GQ Name	char	100
	QC_STATUS_O	Original QC Status	char	1
	QC_ACTCODE_O	Original QC Action Code	char	1
	MAF_ID_O	Original MAF Identifier	char	12
	SURVMAF_ID_O	Original Surviving MAF Identifier	char	12
	GPS_MANUAL_O	Original GPS / Manual Flag	char	1
	RES_STAT_O	Original Residential Status	char	2
	HU_TYPE_O	Original Housing Unit Type	char	1
	CS_LOC_O	Original City Style Location Flag	char	1
	NCS_MAIL_O	Original Non-City Style Mail Flag	char	1
	CS_MAIL_O	Original City Style Mail Flag	char	1
	MS_EDIT_O	Original Map Spot Collection Indicator {GPS/Manual/Original}	char	1
	SURV_ID_FLAG_O	Original Flag to identify Surviving Records	int	12
	MAIL_NCS_O	Original Concatenated Field containing RR Desc, RR ID, Box/POBox Desc, Box/POBox ID	char	24
	LOC_HSENUM_O	Original House number	char	10
	LOC_PRE_DIR_O	Original Prefix direction	char	2
	LOC_PRE_TYPE_O	Original Prefix type	char	4
	LOC_STREETNAME_O	Original Street name	char	40
	LOC_SUF_TYPE_O	Original Suffix type	char	4
	LOC_SUF_DIR_O	Original Suffix direction	char	2
	LOC_STREET_EXT_O	Original Street extension	char	3
	LOC_STR_LABEL_O	Original Street name (concatenated)	char	60
	LOC_WS_DESC_O	Original Within structure descriptor	char	12
	LOC_WS_ID_O	Original Within structure identifier	char	12
	LOC_WS_LABEL_O	Original Within structure (concatenated)	char	24

Layer Name	American Indian Reservation			
Feature Class	n/a			
Extent	LCO			
Shape	Polygon			
File Name(s)	smap_aiannh_<LLLL>.shp smap_aiannh_<LLLL>.shx smap_aiannh_<LLLL>.dbf			
Attributes	FID		int	1
	Shape		var	
	IR		char	4
	NATU		char	1
	NAME	Name + LSAD, Short decode value	char	90

Layer Name	American Indian Tribal Subdivision			
Feature Class	n/a			
Extent	LCO			

Shape	Polygon			
File Name(s)	smap_aits_<LLLL>.shp smap_aits_<LLLL>.shx smap_aits_<LLLL>.dbf			
Attributes	FID		int	1
	Shape		var	
	IR		char	4
	AIT5		char	3
	NAME	Name + LSAD, Short decode value	char	90

Layer Name	CLD Polygon	Crew Leader Districts		
Feature Class	n/a			
Extent	LCO			
Shape	Polygon			
File Name(s)	smap_cld_polygon_<LLLL>.shp smap_cld_polygon_<LLLL>.shx smap_cld_polygon_<LLLL>.dbf smap_cld_label_<LLLL>.shp smap_cld_label_<LLLL>.shx smap_cld_label_<LLLL>.dbf			
Attributes	FID		int	1
	Shape		var	
	STATE		char	2
	COUNTY		char	3
	LCO		char	4
	FOSD		char	2
	CLD		char	2
	LABEL	"FF CC"	char	5
	HIGHLIGHT	Highlight flag, initialize to 0	int	1

Layer Name	2006 Collection Block			
Feature Class	n/a			
Extent	Collection block			
Shape	polygon			
File Name(s)	dmap_block_polygon_<LLLL><SS><CCC><BBBBB>.shp dmap_block_polygon_<LLLL><SS><CCC><BBBBB>.shx dmap_block_polygon_<LLLL><SS><CCC><BBBBB>.dbf			
Attributes	FID		int	1
	Shape		var	
	STATE		char	2
	COUNTY		char	3
	LCO		char	4
	FOSD		char	2
	CLD		char	2
	BLOCK	(right justify and trim)	char	6
	HIGHLIGHT	Highlight flag, initialize to 0	int	1

Layer Name	County Label			
Feature Class	n/a			
Extent	LCO			
Shape	polygon			

File Name(s)	smap_county_polygon_<LLLL>.shp smap_county_polygon_<LLLL>.shx smap_county_polygon_<LLLL>.dbf		
Attributes	FID		int 1
	Shape		var
	STATE		char 2
	COUNTY		char 3
	COU_NAME	"<NAME>, <PST>"	char 30

Layer Name	County Line		
Feature Class	n/a		
Extent	LCO		
Shape	line		
File Name(s)	smap_county_line_<LLLL>.shp smap_county_line_<LLLL>.shx smap_county_line_<LLLL>.dbf		
Attributes	FID		int 1
	Shape		var
	ID		int 1

Layer Name	Highway Line		
Feature Class	A1*-A2*		
Extent	LCO		
Shape	line		
File Name(s)	smap_highway_line_<LLLL>.shp smap_highway_line_<LLLL>.shx smap_highway_line_<LLLL>.dbf		
Attributes	FID		int 1
	Shape		var
	HWY_NAME		char 90

Layer Name	Map Spot		
Feature Class	G21-G23		
Extent	Collection block		
Shape	point		
File Name(s)	dmap_mapspot_point_<LLLL><SS><CCC><BBBBB>.shp dmap_mapspot_point_<LLLL><SS><CCC><BBBBB>.shx dmap_mapspot_point_<LLLL><SS><CCC><BBBBB>.dbf		
Attributes	FID		int 1
	Shape		var
	ADDR_ID	Key to address list layer.	int 1
	MSNUM	(right justified)	char 5
	MSID		char 23
	ORG_XCOORD	MAF Map spot abscissa value	float 1
	ORG_YCOORD	MAF Map spot ordinate value	float 1
	GPS_XCOORD	GPS abscissa value	float 1
	GPS_YCOORD	GPS ordinate value	float 1
	MAN_XCOORD	Manual abscissa value	float 1
	MAN_YCOORD	Manual ordinate value	float 1
	MS_TYPE	Map Spot Type (determinant value from matrix of highlight flag, deletion	int 1

		status, and type value).		
--	--	--------------------------	--	--

Layer Name	Place Line			
Feature Class	n/a			
Extent	LCO			
Shape	line			
File Name(s)	smap_place_line_<LLLL>.shp smap_place_line_<LLLL>.shx smap_place_line_<LLLL>.dbf			
Attributes	FID		int	1
	Shape		var	
	ID		Int	1

Layer Name	Place Polygon			
Feature Class	n/a			
Extent	LCO			
Shape	polygon			
File Name(s)	smap_place_polygon_<LLLL>.shp smap_place_polygon_<LLLL>.shx smap_place_polygon_<LLLL>.dbf smap_place_label_<LLLL>.shp smap_place_label_<LLLL>.shx smap_place_label_<LLLL>.dbf			
Attributes	FID		int	1
	Shape		var	
	STATE		char	2
	PLACE		char	4
	PLC_NAME		char	90

Layer Name	Rail Line			
Feature Class	B1* - B5*			
Extent	LCO			
Shape	line			
File Name(s)	smap_rail_line_<LLLL>.shp smap_rail_line_<LLLL>.shx smap_rail_line_<LLLL>.dbf			
Attributes	FID		int	1
	Shape		var	
	RR_NAME		char	90

Layer Name	Roadname Table			
Feature Class	A1*-A7*			
Extent	Collection block			
Shape	line			
File Name(s)	dmap_roadname_table_<LLLL><SS><CCC><BBBBB>.shp dmap_roadname_table_<LLLL><SS><CCC><BBBBB>.shx dmap_roadname_table_<LLLL><SS><CCC><BBBBB>.dbf			
Attributes	FID		int	1
	Shape		var	
	TLID		int	1
	CFCC		char	3

	HIGHLIGHT	Highlight flag, initialize to 1	int	1
	MOD_FLAG	A (Added), D (Deleted), M (Modified), or blank	char	1

Layer Name	Road Names			
Feature Class	A1* - A7*			
Extent	Collection block			
Shape	NONE			
File Name(s)	dmap_rd_name_<LLLL><SS><CCC><BBBBB>.shp dmap_rd_name_<LLLL><SS><CCC><BBBBB>.shx dmap_rd_name_<LLLL><SS><CCC><BBBBB>.dbf			
Attributes	TLID		int	1
	FNDIS		char	90
	PFTYPE		char	10
	SFTYPE		char	10
	PFDIR		char	10
	SFDIR		char	10
	ROAD_LABEL		char	130
	MOD_FLAG	A (Added), D (Deleted), M (Modified), or blank	char	1

Layer Name	Street Line			
Feature Class	A3*-A7*			
Extent	Collection block			
Shape	line			
File Name(s)	dmap_street_line_<LLLL><SS><CCC><BBBBB>.shp dmap_street_line_<LLLL><SS><CCC><BBBBB>.shx dmap_street_line_<LLLL><SS><CCC><BBBBB>.dbf			
Attributes	FID		int	1
	Shape		var	
	STR_NAME		char	90

Layer Name	Water Line			
Feature Class	H1*-H6*			
Extent	LCO			
Shape	line			
File Name(s)	smap_water_line_<LLLL>.shp smap_water_line_<LLLL>.shx smap_water_line_<LLLL>.dbf			
Attributes	FID		int	1
	Shape		var	
	H1_NAME		char	90
	CFCC		char	3

Layer Name	Water Polygon			
Feature Class	H1*-H6*			
Extent	LCO			
Shape	polygon			
File Name(s)	smap_water_polygon_<LLLL>.shp smap_water_polygon_<LLLL>.shx			

	smap_water_polygon_<LLLL>.dbf			
Attributes	FID		int	1
	Shape		var	
	H2_NAME		char	90
	CFCC		char	4

Notes:

- Currently, named features in the water polygon layer are stored as multi-part (can have more than one area) polygons, and all un-named water is stored as one feature per single area (polygon).
- Shape-file field names are limited (by dBase III specifications) to 10 characters.
- 2000 collection blocks are being used to simulate 2006 collection blocks for LAMI v2.0. In some future version, actual 2006 collection blocks will be used.
- The Shape_Leng and Shape_Area fields are NOT included in the shape-files. These fields are automatically created by ArcGIS when a shape-file is exported to a geodatabase layer.
- For shape-files, <name>.shp, <name>.shx, and <name>.dbf files must exist for the ‘shape-file’ to be considered valid and complete.
- The address list table will be output as a comma delimited ASCII file. To minimize the impact on software between versions the order of the fields shall be preserved, and new fields shall be appended to the layout.
- An empty shape-file shall be created as a ‘placeholder’ for any partitioning entity for which there is no data.
- The record numbers in the Address List data file field ADDR_ID shall be assigned sequential numbers starting with 1 (one) unique within each block.
- Fields in the Address List data file should be trimmed in accordance with the chart provided by the Address List Data Content Working Group (see second level address detail view, special processing column). For all concatenated columns, excess spaces between the fields should be removed.
- LLLL denotes the 4-digit LCO code. SS denotes the 2-digit state FIPS code. CCC denotes the 3-digit county FIPS code. BBBB denotes the block code composed of the 4-digit or 5-digit block base plus the 1 character block suffix if present.
- The Street Line layer is desired at the block level. Due to software limitations, it will be provided at the AA level, and the MSB will duplicate and rename the file for each block in the AA before delivery.
- The block code (both in file names and in layer fields) currently allows for 6 characters (4 or 5 digit block base plus 1 character suffix). For some future version of LAMI, the request has been made to expand the block code to 7 characters to allow for an additional 1 character suffix.

Modification History:

Version 1.1 (for LAMI v1.0)	Jay E. Spurlin (proposed changes : incorporating comments from working group meeting and review with Beverly).
General	Shaded earlier proposals or existing items not previously documented with blue highlight. Shaded new proposed changes with yellow highlight.
CLD	Changed FOSD_CLD_LABEL to LABEL (there is a 10 character field name length imposed by the dBase III file format specification). Proposed changing the contents of the field to the LCO, FOSD, and CLD values in the format "LLLL FF CC".
Collection Block	Proposed removal CUSTATE and CUCOUNTY fields. Proposed addition of LAYERSTAT field (including initial value).
FOSD, FOSDLINE, STATELINE	Proposed removal of these layers.
Notes	Removed items that belong in other documents.
Version 1.2 (proposed final for LAMI v1.0)	Jay E. Spurlin, May 6, 2004; (made changes approved by Map Data Content Working Group; added draft Address List information).
ADDRESSES	Added to document (existed in separate document before).
ADDRLIST	Added to document (compiled from ALDC WG document).
AIANNH	Changed NAME contents to include short decode of LSAD value. Changed length to 90 characters.
AIT5	Changed NAME contents to include short decode of LSAD value. Changed length to 90 characters.
CLD	Changed LABEL contents back to "FF CC" (removed LCO code).
Collection Block	Changed initialization of LAYERSTAT field to 'E'.
County	COU_NAME content changed to "<NAME>, <PST>" (PST is state postal abbreviation).
FOSD, FOSDLINE	Removed layers.
GPS, MANUAL	Added to document (compiled from ALDC WG document).
MAPSPOTS	Modified to reflect new map spot layer (compiled from ALDC WG document).
ROADNAMES	Added to document (existed in separate document before).
STATELINE	Removed layer.
Notes	Removed proposed items.
Version 1.3 (Final for LAMI v1.0)	Jay E. Spurlin, May 13, 2004; (made changes resulting from meeting with developers).
ADDRLIST	Added/removed/modified fields according to meeting and Address List Map Data Content "Address List View" document.

GPS	Added GPSNUM label field.
MANUAL	Added MANUALNUM label field.
All layers	Removed all references to Shape_Leng and Shape_Area fields. If the shape-files are exported to a geodatabase layer, the ArcGIS software automatically creates these fields in the geodatabase layer, but the fields are NOT included in the shape-files generated by the SDSB.
Notes:	Added notes about Indian layers, 2000 block layer, and file names.
Version 2.0 (Draft for LAMI v2.0)	Jay E. Spurlin, June 1, 2004; (made changes requested by Frank McPhillips). June 24, 2004; (made changes requested by the MSB).
All layers	Layer names were changed. Added HIGHLIGHT field to selected layers. Added MOD_FLAG field to selected layers.
AA Polygon	Added as new layer.
ADDRLIST	Duplicated fields HSENUM through WS_LABEL. One set was prefixed with LOC_ for location-style addresses. The other set was prefixed with MAIL_ for mailing-style addresses. Changed CSZIPCODE to MAIL_ZIPCODE. Changed NCSZIPCODE to LOC_ZIPCODE and moved it up in the layout next to the other LOC_ fields. Added CS_MAIL field.
ADDRLIST	Added fields per addr_list_v2.0_datafile_updates.doc (“Proposed Additions to the Address List Data File Definition”); attempted to merge this request with prior request, shown immediately above (Differences: NCSZIPCODE, CSMAIL).
GPS	Removed layer; combined contents with Map Spot layer.
Manual	Removed layer; combined contents with Map Spot layer.
Street Line	Changed the level to be partitioned by AA.
Notes	Added several notes generated by recent requests.
Version 2.1 (Draft for LAMI v2.0)	Jay E. Spurlin, July 7, 2004; (made changes requested in Map Data Content Working Group Meeting).
Table of Contents	Added.
AA layer	Added OPCODE field.
Address List layer	Reordered fields that existed in LAMI v1.0 to match their order in LAMI v1.0 (per v1.3 of this document). All additional fields for LAMI v2.0 were appended to the end of the layout.
All layers	Changed all HIGHLIGHT fields to integer type; added initialization value information.
2006 Collection Block layer	Removed WORKLOAD and LAYERSTAT fields; they were merged into the HIGHLIGHT field.
Map Spot layer	Changed MS_TYPE field to integer type.
Street Line layer	Corrected to show final extent and file names, not the intermediate values.

Appendix E

Identify Tool (conceptual)

Figure 1 shows the standardized pull down menu for the identify tool (refer to appendix B for actual tool layout).

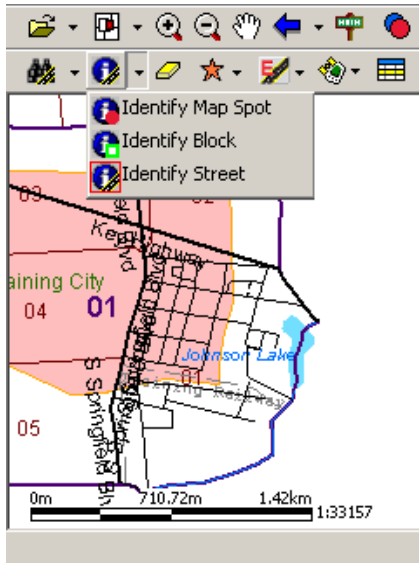


Figure 1

Figure 2 shows the results popup boxes for all three identify tools (map spot, block, and street). The map spot identify box shall indicate the type of map spot (i.e., original, collected, deleted, or duplicate) in the box header as shown.



Figure 2

Appendix F

Find Tool (conceptual)

Figure 3 shows the standardized pull down menu for the find tool (refer to appendix B for actual tool layout).

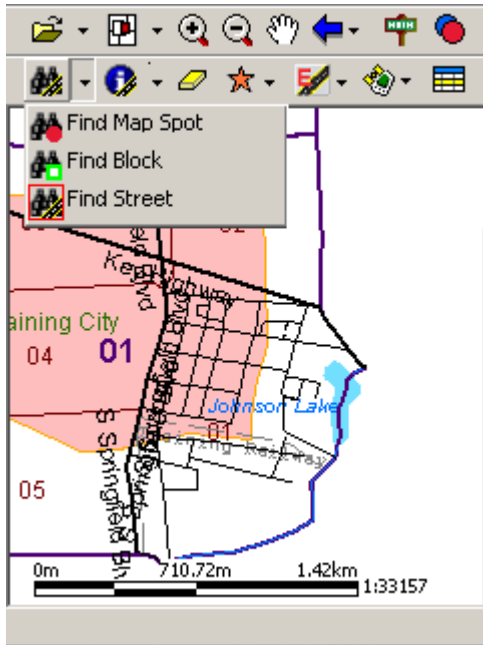


Figure 3

Figure 4 shows the individual search windows for each find tool. Finding a street requires two stages as shown below. The “Zoom to Selected Feature” is depicted where appropriate.

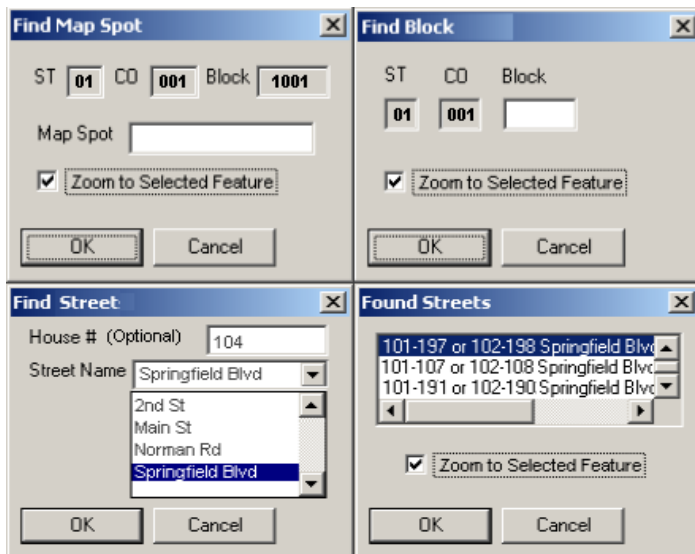


Figure 4

Appendix G

Map Legend (conceptual)

The image below shows the map legend for the LAMI. It is scrollable to allow room for all of the map symbols.

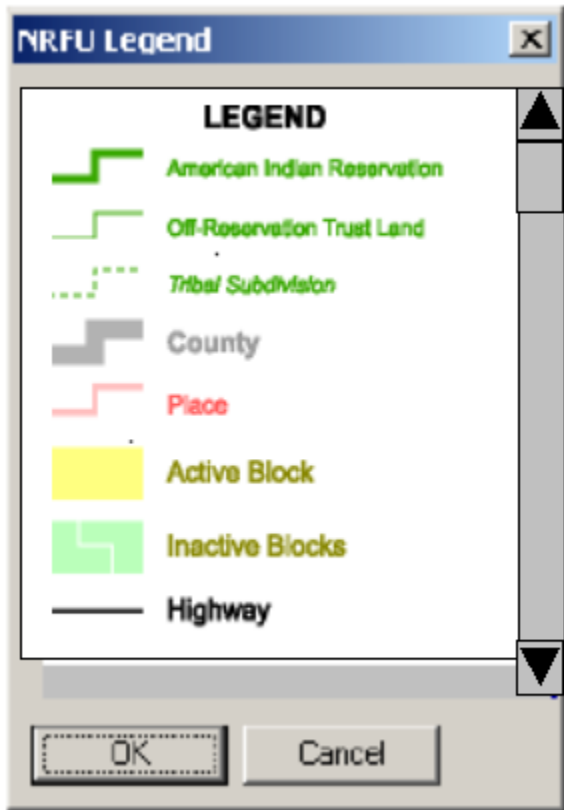


Figure 5

Appendix H

“You Are Here” Indicator

The follow describes the GPS “You Are Here” indicator. It has been provided by the LAMI Interface Design Working Group.

LAMI Interface Design WG, May 18, 2004
LAMI Version 2.0

Tool: GPS "you are here" Indicator
Button/Toolbar Name: GPS Active

Initial Display: (see figure 6 below)



Figure 6

Description: This tool provides the user with their current location and the direction in which they are moving or traveling. The direction of travel is indicated with an arrow.

Functional Requirements:

1. The GPS “you are here” indicator is turned on and off by tapping on the button once with the stylus.
2. When the GPS "you are here" button is toggled on, a locator icon shall appear on the map to accurately indicate the user’s current location. In addition, it will decipher the direction in which the user is traveling and depict the direction with a spike.

The functionality of the direction indicator should be explored to see if improvements can be made. Ideally, when a user is traveling in the field, the direction arrow would continue to function even when there is little movement.

3. When the GPS "you are here" button is toggled off, the locator icon shall disappear from the map.
4. The GPS "you are here" function will visually notify the user if the GPS receiver is no longer receiving a signal.
5. The user shall have the ability to toggle on and off the automatic pan/zoom that takes place once the GPS is activated. This automatic pan/zoom repositions the map so

the user's current location stays on the current map view.

6. We may want to explore the availability of other icons to represent the user's location and direction available in ArcPad. The circle with the arrow could be replaced with an arrow head which would make it easier to see direction. We will have to get stakeholder reaction to the currently specified icon in LAMI version 1.0 before we can say a new icon is worth exploring

Appendix I

Street Editing Tools (conceptual)

Figure 7 shows a pull down menu for all of the LAMI street editing tools (refer to appendix B for actual tool layout). The icon designs for this dropdown menu are TBD.



Figure 7

Figure 8 shows the popup boxes used when entering a street name at the beginning of the add street process.

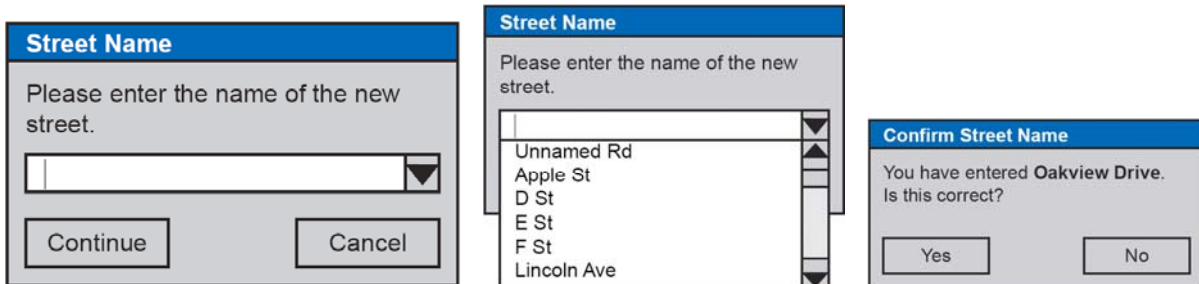


Figure 8

Figure 9 shows GPS status messages that will be used to inform the user of the GPS status and its affect on their GPS street collection.

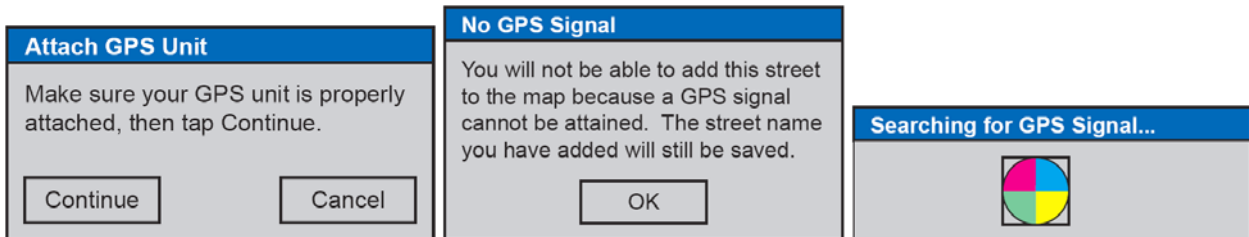


Figure 9

Figure 10 shows the green “Start Street Collection” screen, the red “Stop Street Collection” screen, the popup message that will appear if the action is canceled, and the popup message that will appear if the collected street falls entirely outside of the active block. The red screen shall be displayed on the user’s HHC during the actual GPS street collection.

(Note: If specific RGB values are used to define the green Start Street Collection screen [77,175,74] and the red Stop Street Collection screen [228,26,28], and these colors can be attained by the HHC, the colors should not confuse people with red-green color blindness according to <http://www.colorbrewer.org>.)



Figure 10

Figure 11 shows the process of zooming in to the starting section of the GPS collected street and selecting the start point. If the user taps outside of the active block, the LAMI shall display a popup warning message (upper right). Selecting the ending point is a similar process so only the popup messages for that task are shown.

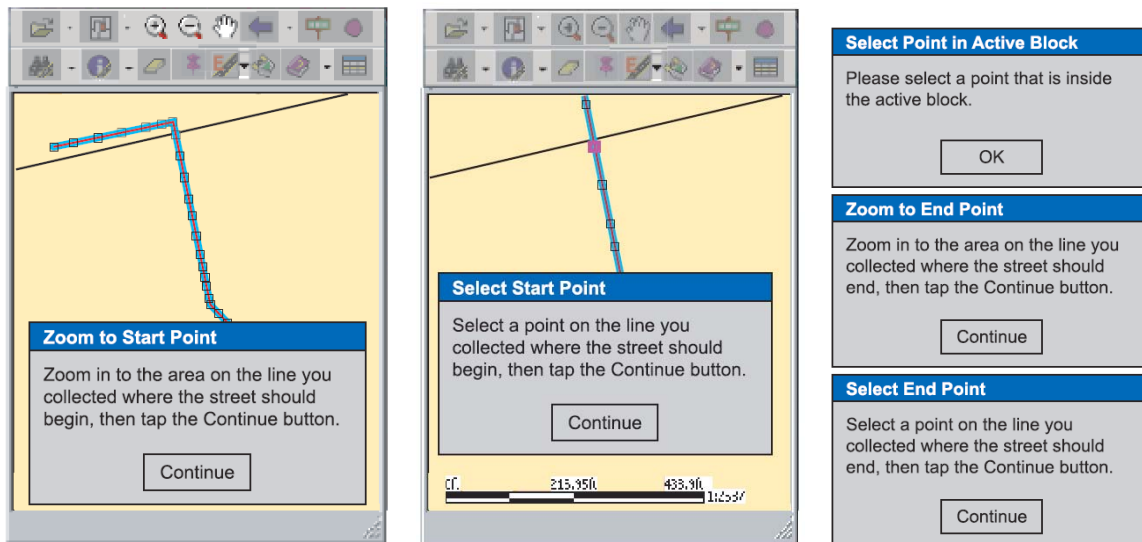


Figure 11

Figure 12 shows the street line processing message and the message the user will see upon successfully adding a GPSed street to their map.

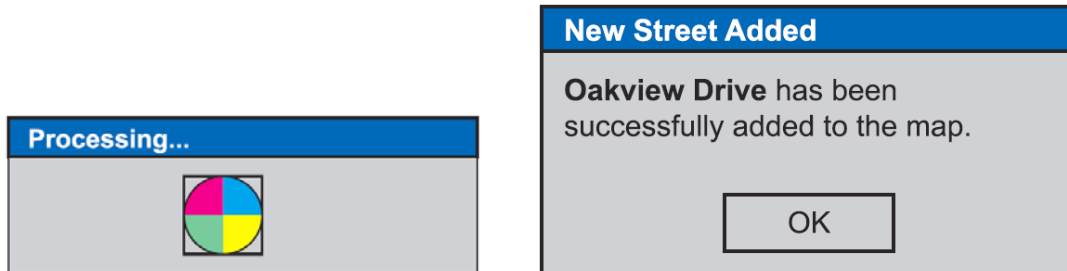


Figure 12

Figure 13 shows the message a user will see when they initiate the select street tool. The user will only be able to tap “Continue” after they have selected a street segment.

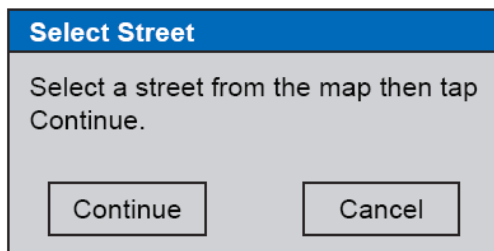


Figure 13

Figure 14 shows the popup boxes with which the user will interact when editing a street name.

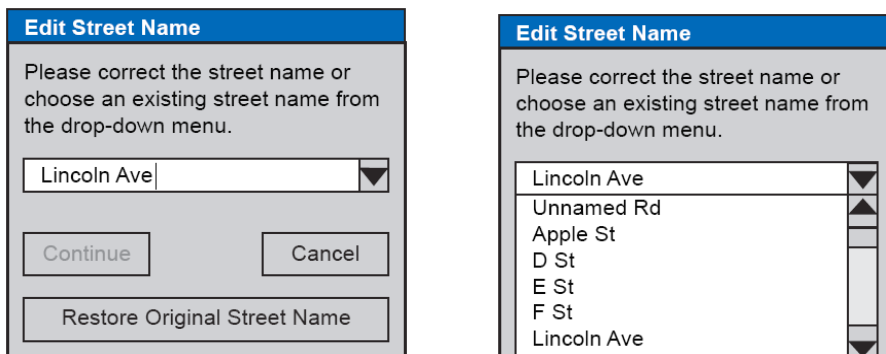


Figure 14

Figure 15 shows the message box the user will be presented when initiating the delete street tool.

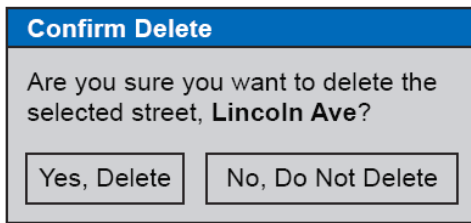


Figure 15

Figure 16 shows the message box the user will be presented when initiating the restore deleted street tool.

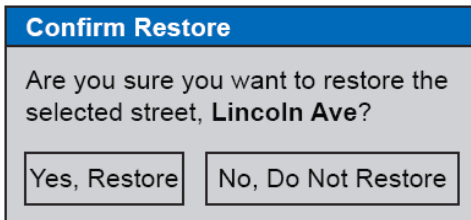


Figure 16

Figure 17 shows an example of how street line features might be added using LAMI in the field.

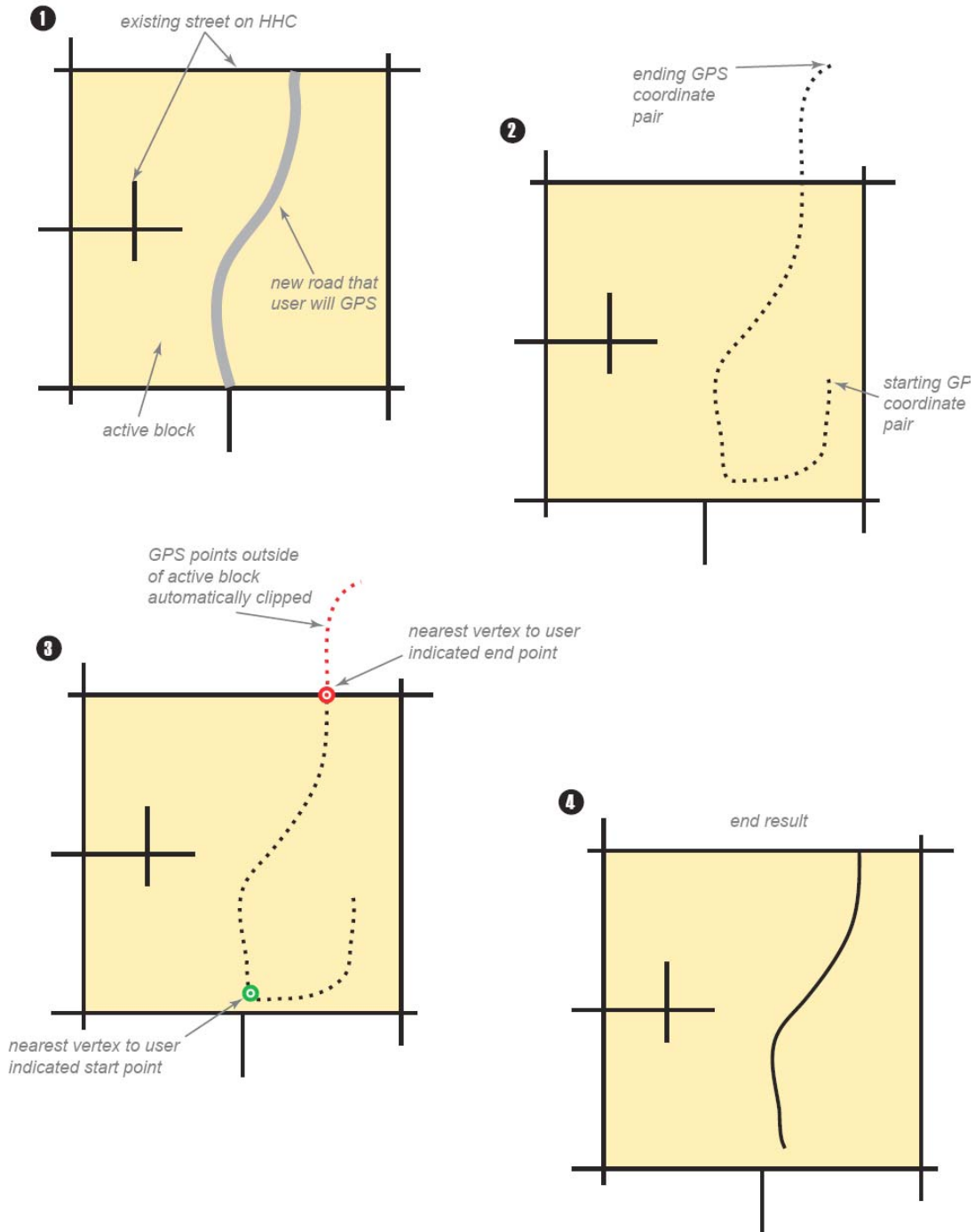


Figure 17

Figure 18 shows another example of how street line features might be added using LAMI in the field. In this case, part of the street the user is trying to collect falls outside of the active block.

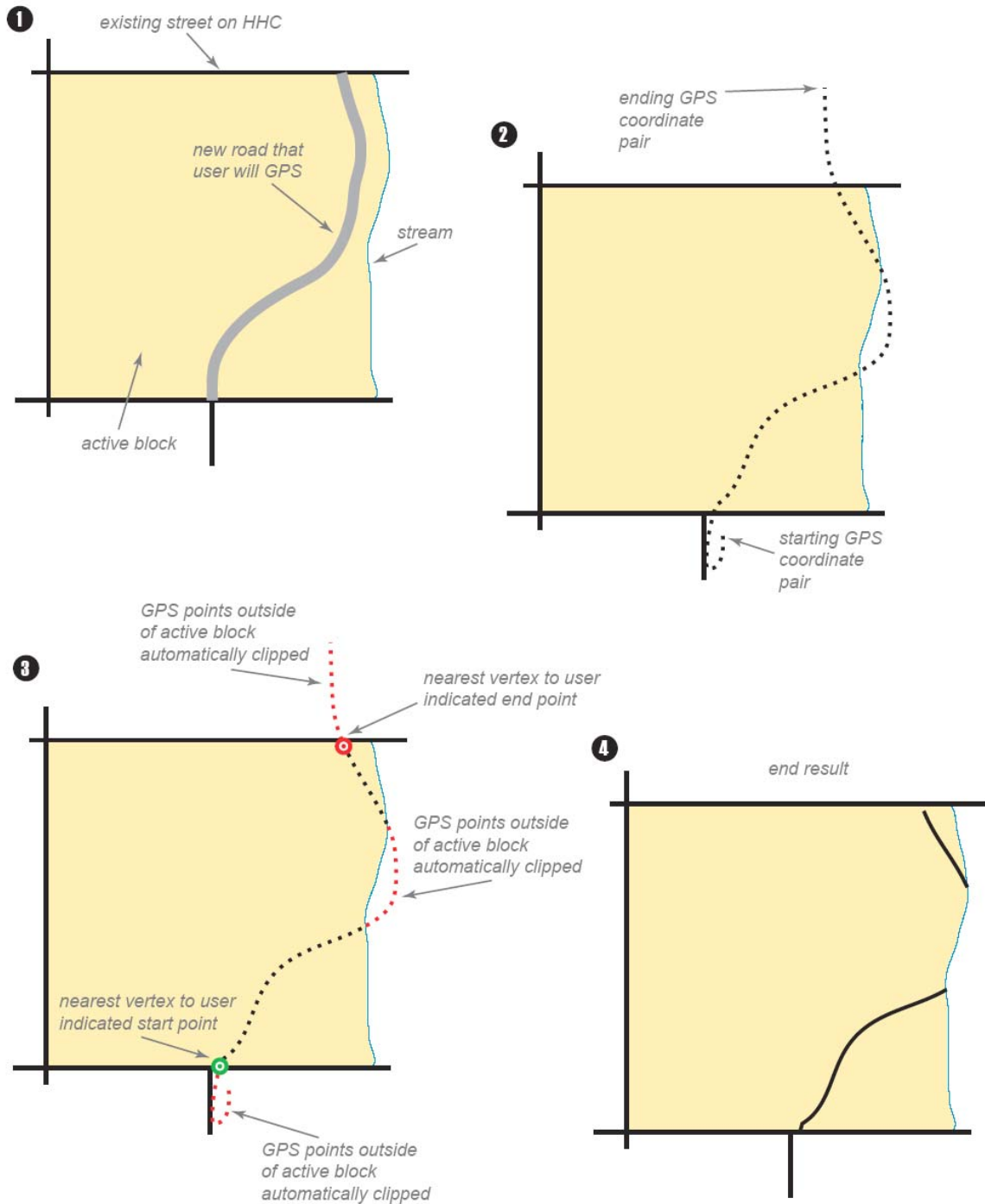


Figure 18