

BikeZip User Interface (for map viewing)

Note: This is an informal working document.

Display Interface Implementation

The website display consists of a map display and surrounding panes. The map display shows an underlying map with both street and satellite views (e.g. Google map), overlaid with various bike route lines and icons. Bike route lines are polylines, meaning lines consisting of multiple individual line segments (segment in the geometric sense, not be confused with route segments defined below). The lines representing routes or parts of routes are shown in different colors or styles to indicate relevant conditions such as bike lanes, shared use paths, etc. Some portions of routes are displayed only at deeper zoom levels. Icons or text drawn on the map indicate features and serve as clickable objects displaying further information or invoking functions.

Fixed panes include the following:

- Commands - Buttons invoking basic commands, such as Search, Help, etc.
- Information – Allows basic navigation from point to point and shows information for selected routes and points; overlaid with search
- Map – The map itself
- Identification – BikeZip logo, links, sponsors (squeezed in wherever)

Initially supported functions include:

- Navigation – Using arrows or numbers on the data pane, for segments and points
- Data Display – On information pane
- Routes, Segments, Points, Spans
- Filter – Basic filtering of segments by bikeway type and similar features
- Search – Google-provided map search (search of BikeZip data not for initial implementation)
- Street View – Only if easy to do within Google
- Zoom – Display of points and segments at appropriate zoom level, merging of points
- Help

Not initially supported is:

- Printing
- Photos
- Route generation/cue sheets
- Topographical profile
- User data entry, comments

Segment Interface

- Segments are selected by clicking on them. There is no rollover behavior (until Google supports it).

- Data fields for the selected segment is displayed in the information pane.
- If a segment is colocated with any span, the segment info in the information pane contains links to the spans.

Span Interface

Note: "Span" has been scalled "section" in some other BikeZip documentation.

A span is noted by a single icon along it. Spans have a description field and a vicinity flag, but titles and directional tagging are not initially supported. Spans may be colocated with segments. A list of links to colocated spans is provided in the information pane when such a segment is selected. Each link contains a truncated one-line excerpt of the span text (or some more concise format).

Primary Option: Rolling over the icon highlights the span and displays text in a bubble while the cursor is over the icon. The bubble text is truncated if longer than a certain number characters. Clicking the span icon selects the span and underlying route segment and displays span information in the information pane (and keeps it there). Option #2: Same as primary option, but rollover text is displayed in a truncated or scrollable "rollover" area of the info pane (shared with rolled over points, etc.). No bubbles are used.

Option #3: Same as primary option, but clicking the icon to select the span not only displays span info in the info pane, but also displays the info in the bubble in scrollable form, with an 'x' provided to close the bubble.

Point Interface

There are three types of points for purposes of screen behavior:

- A point that is not an intersection or segment boundary and has no information is either not displayed or has a small, non-clickable icon (TBD). It is ignored when navigating sequentially through points.
- Intersection points and segment boundaries without information are noted by a small clickable icon, which if clicked on selects the point.
- Points with information are noted by special information icons. These icons are treated as span icons with respect to bubble and selection behavior, and selected points always have information displayed in the information pane. Information points are highlighted when rolled over. Information points have a vicinity flag, which for fixed points (like intersections and segment boundaries) refers only to descriptive information. Titles and directional tagging are not initially supported for any points.

Search Interface

Searching is done via the standard Google search box, which is positioned within the information pane with the name "Google Map Search". It is always visible (or alternatively becomes visible when the user clicks the Search command button – TBD). When a search is executed (via a "Go" button next to the box), search results fill up the information pane, displacing other information. A link above the results allows hiding/redisplaying search results. Clicking on a result goes to that location on the map. The Search interface provides a "Back" button that returns to the previous location after

changing the center point on the map. Beyond the initial implementation, this button will be implemented for all map move events.

Filter Interface

Filtering is done via a set of combo boxes and radio buttons that appear in a popup window overlaid over the map.

Base Map

The *base map* consists of a street map and a collection of bike routes with associated information. Routes are divided into segments. Each segment contains two or more points. Points are defined at, but are not limited to, intersections, segment start/end points and heading changes. Arbitrary lengths of routes called spans may also be defined. Routes, segments, points and spans have associated data fields, including text fields and photos for display to the user (except segments).

Routes

- Routes are shown as color-coded lines. All roads and shared use paths where bicycles are permitted by law are considered routes.
- A route is generally the entire length of a street or path, up to where the street or path ends or changes names. Some very long streets may be divided into multiple routes.
- Each route has an associated discussion area. There is also a general discussion area for each map region.

Segments

- A route is divided into segments, where each segment corresponds to a part of the route where key characteristics are constant. A segment may contain many points. Segments always start and end at a point.
- Key segment characteristics are: bikeway type, road type, difficulty level, zoom level, number of lanes (if recorded), and direction.
- A segment also has a name and description, which are not displayed.
- Segments are an internal concept and are not called out in the user interface (though they can be inferred from segment characteristics)

Intersections

- Intersections are a type of point where two or more routes meet and you can get from one route to the other.
- Intersections are assigned default directions from each leg-leg combination, which can be overridden with custom text for each combination. These are meant as very minimal directional guidance (typically "bear R"), while longer comments go into the general intersection text. Leg-leg combinations are ordered, i.e. leg3-leg2 is not the same combination as leg2-leg3.
- Parts of the intersection primary and secondary description fields may be tagged as belonging to particular leg-leg combinations. This tells the interface to hide this information on cue sheets. This is to prevent display of redundant information in

cue sheets, as well as information relating to leg-leg combinations not relevant to the cue.

- Dead ends are not intersections. But route end points where the street changes name (with or without cross streets) are intersections.

Points

- Points are defined locations along a route. They must exist at route end points, segment end points, heading changes and intersections. They can also be defined by the map creator at any location along a route.
- Points have a primary description field to contain information of primary importance. Not all points need a description.
- Points have an secondary description field to contain additional facts, possibly in list format.
- Sections of the point description fields may be tagged as belonging to a particular direction or (for intersections) leg-leg combinations. This affects what is shown on cue sheets. The tags themselves are not displayed.
- Each point has a yes/no vicinity field which indicates whether point information applies to the point's exact location or to the vicinity before/after the point. Vicinity points are typically informational rather than representing turns or segment boundaries or intersections. On the route display, the area around vicinity points might be shown via a change in color, width, etc. of the route line(s), when the point is selected or possibly rolled over or at all times. This makes the point behave like a very short span. The vicinity region is of undefined size, but is shown as the same size for all points.
Option #2: Instead of vicinity points, consider all vicinity point locations to be zero or minimum length spans. Call spans and vicinity points "notations" and treat as the same thing.
- Points may have associated photos. Photos may be tagged as belonging to a particular direction or (for intersections) leg-leg combinations just like description text, for cue sheet purposes. Photos may have captions. Photos are shown in a photo pane or popup.
- Points with information or photos may be noted in the display interface with an "i" icon and/or camera icon at particular zoom/filter settings.
- The interface supports an informational pane that lets users tab through points of a given route. This tabbing skips non-intersection points with no associated information or photos.

Spans

- A span is a length of route between two points having associated description(s). Its purpose is primarily informational, to indicate conditions or features not captured by segment-specific characteristics. It can be located anywhere along a route. Spans do not have to start and end at points, though it's recommended they do.
- Spans are indicated somehow in the map display, likely as an appearance change of the line. Other options include an icon that can be rolled over, etc.
- Like points, a span has primary and secondary description fields, parts of which may be tagged as belonging to a particular direction for cue sheet purposes. The tags themselves are not displayed.

- Like points, a span may have associated photos, which may be tagged as belonging to a particular direction for cue sheet purposes.
- Like points, a span has a yes/no vicinity field that indicates whether span data applies to the span's exact length or to a vicinity before/during/after the span. On the route display, the vicinity may be shown via a change in color, width, etc. of the route line(s), when the point is selected or possibly rolled over or at all times. The vicinity region is of undefined size.

User-Specified Information

- If users can add their own routes or data, they'll be allowed to add their own points and spans to existing routes for all to see. These will not be considered part of the base map. Users cannot remove or modify points on routes they didn't create.
- Users can add comments or photos to existing points and spans, but comments are not displayed unless the user requests it and they are separate from the primary and secondary info fields.
- This is not to be confused with Wiki editing capability, which allows privileged users to modify the base map by adding, changing or deleting routes.

Zoom Behavior

At lower (further) zoom levels, points, segments and spans may merge (points with points, etc.). Spans whose length is below a threshold based on zoom level are not displayed (icon is not displayed), and a note that spans are not displayed is posted. Segments are displayed but icons are omitted at segment boundaries at further zoom levels, except for route end points.

Data Fields

Initially implemented data fields are as follows.

Route Fields

- Name
- Extra Data (not immediately displayed)
 - Length (miles)
 - Notes
 - Alternate Names

Segment Fields

- Bikeway Type:
 - Road Bikeway
 - Sidepath
 - Road Bikeway + Sidepath
 - Trail
 - Don't call it a bikeway
- Number of lanes (total, excluding turn lanes) – May be range
- Zoom Level
- One-way?
 - North

- East
 - Northeast, etc...
 - Two-Way
- Road Detail:
 - Bike Lane
 - Shoulder
 - Wide Outside Lane
 - Take Lane or Squeeze
 - Intermittent Width
 - Prohibited or N/A
 - Unknown
- Approx. Speed Limit
- Sidewalk?
 - Yes (or Path)
 - No
 - Unknown
- Description/Notes – If there is a description, the entire segment is treated as a span complete with icon, but a different icon is used. If the icon is rolled over, the rollover bubble (or area) notes that the span corresponds to the entire segment. If the icon or segment polyline is clicked on, the span area of the information pane says "Span = Segment. See Segment Description." and both span and segment become selected. In practice this should be fairly clear.
- Extra Data (not immediately displayed unless very small number of items)
 - Length
- Internal Data (never displayed)
 - Name

Span Fields

- Vicinity Flag – refers to description only
 - Vicinity – noted in parentheses within description
 - Exact – default, not noted
- Description/Notes
- Length

Point Fields

- Lat/Lng
- Description
- Description/Notes
- Vicinity Flag – refers to description only. Generally not used for intersections or segment boundaries.
 - Vicinity – noted in parentheses within description
 - Exact – default, not noted