

# IPB Dashboard

Interactive and anticipatory

by Maj Keith S. Crim, Jr.

**W**ithin a day of notification, you are to represent your warfighting function at a MAGTF command element operational planning team (OPT). Because of your ongoing operational commitments elsewhere, you are unfamiliar with the situation facing the OPT and find yourself at a loss concerning rudimentary knowledge associated with the weather, enemy forces, and the physical environment, i.e., the minimum intelligence requirements needed to begin effective planning. Lacking the time to do encyclopedic research, you find yourself defaulting and depending on the intelligence brief given at the commencement of the OPT from the MEF G-2. Fearing death by PowerPoint presentation, you attend this brief with a charged cup of coffee to keep you stimulated and engaged, but you lose your concentration, and slide 74 passes with specific information covering your warfighting function. You miss it and find yourself, two hours later, without the information you needed to address your concern. Determined to make an informed assessment, you ask your question and are told to reference the intelligence preparation for the battlespace (IPB) brief just given.

You gain a copy of the IPB brief and start clicking away on the slides. Not knowing where your one nugget of information is, you read each slide meticulously until you reach the desired information. An hour later, when you've reached that one piece of information, however, it sparks another question, and in order to answer it, you keep clicking away on the slides in hopes of running across it. Overall, you have just spent an inordinate amount of time trying to find answers to your concerns, which has now caused a delay in tempo of the OPT.

The command element IPB brief is the first stop for most OPT members

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trying to gather the data required to support the entire MAGTF planning process. The penultimate purpose of an IPB brief is to inform planning and decision making within the single battle framework (a tenet of the Marine Corps Planning Process) by enabling the MAGTF to achieve a common understanding of the operational environment. However, by itself, the typical IPB brief does not distill, analyze, articulate, or improve the creation and synthesis of knowledge, nor does it permit the filtering of the plethora of information that it contains, which can easily overwhelm any OPT or staff member and, in many cases, even an intelligence analyst. In its current form, the products of the IPB process do not facilitate informing the single battle in a timely manner or anticipate follow-on requirements originating from across the warfighting functions. This article proposes an interactive and anticipatory dashboard concept that harnesses the aggregated information developed in the IPB process, facilitates commander and staff synthesis and knowledge, and enables intelligence professionals to get out of the stovepipe mode.

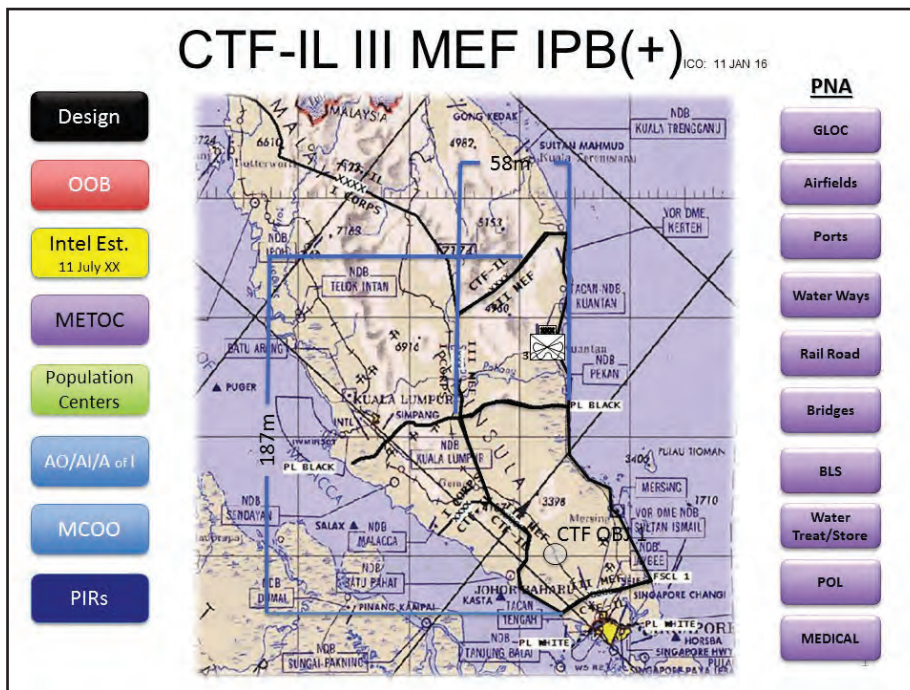
To demonstrate these techniques, we will use the LCE IPB instructional product used by both the Marine Corps Logistics Operations Group (MCLOG) and the MAGTF Staff Training Program (MSTP). As starting points of reference, what follows is a quick look at the general IPB process as well as one of the LCE's specific contributions to the MAGTF IPB: physical network analysis (PNA).

## IPB

The IPB process consists of four steps: defining the battlespace, describing the battlespace effects, evaluating the threat, and determining enemy courses of action. To develop the IPB, the intelligence professional gathers and analyzes information and produces an iterative series of products within each step of the process. When the process is complete (though, by definition, it is never really complete but is constantly modified and updated until the MAGTF mission is complete), the resultant IPB PowerPoint brief can encompass hundreds of slides addressing enemy, weather, and terrain from a macro to micro perspective. While this process often provides an impressive level of detail, as mentioned above, it is not necessarily effective in providing a comprehensive and common single battle understanding.

## PNA

Similar to IPB, the typical PNA provides detailed information on nodes<sup>1</sup> and infrastructure in the operating environment. To date, there is no clear doctrinal definition of what constitutes PNA; conventional operating force wisdom holds that PNA is the identification/analysis of physical operating nodes, the connectors between these nodes (e.g., ground, air, and sea lines of communications, modes of movement, etc.), and the analysis of how these relate to MAGTF operations within and between these nodes. Intelligence professionals often interpret PNA as IPB(plus), with the specific goal of PNA being support to logistics, movement, and distribution. In any case, a well-developed PNA, and its associated products, by default, makes the LCE intimately knowledgeable on maneuver between multi-mode (land, sea,



Map 1.

air) capable nodes. Much like IPB, the PNA concept provides focus for intelligence professionals within the LCE, with experienced LCE S-2/G-2 shops focusing on the analysis required to provide commanders and planners with assessments regarding the probabilities, effects, and mitigating factors related to possible disruptions that may occur at designated nodes and while traveling between them.

IPB and PNA together provide a MAGTF with the necessary knowledge to facilitate informed decisions. This reinforced product increases the amount of information and emphasizes how best to manage it. The next section will explain how to best organize the depth of detail and demonstrate the IPB dashboard's ability to facilitate navigation so that a user can move from the macro to the micro.

### Interactive

As with any intelligence product, it is incumbent that the IPB be tailored and relevant to support the MAGTF and its mission in a rapidly changing environment. In particular, managing information is the key to success when dealing with vast amounts of data. The filing and disseminating of this information

is crucial, and there are significant opportunities to create and transform multiple tools and applications such as SharePoint to foster integrated thinking and collaboration. Coordination can be enhanced via a SharePoint site that is structured in a systematic way to enable operators to pull relevant intelligence in a quick and efficient manner with domain access tailored to a particular operating environment. In execution, the intelligence section can design its

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particular SharePoint portal site as a dashboard of information broken down by the four steps of the IPB process. This concept quickly enables a user to drill down into the step of the IPB process that is relevant to his specific concerns.

The following is an example of an IPB dashboard format that expresses

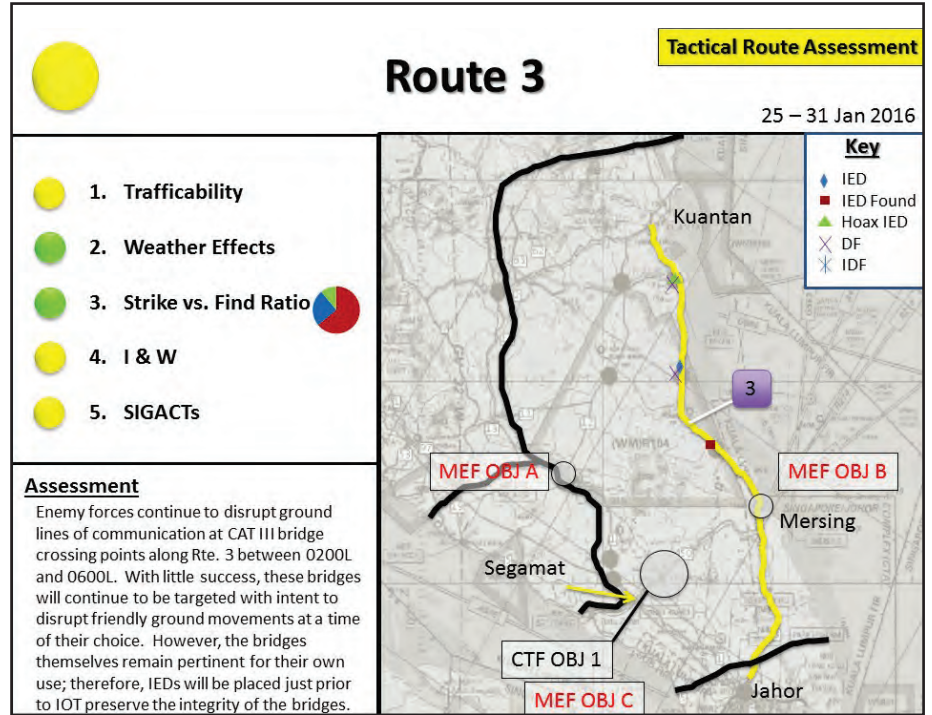
complex data in a simplistic manner (see Map 1). Via SharePoint, an IPB link off the G-2 page opens a window that consists of a map chip depicting the entire MAGTF area of operations flanked by links on both sides that are tailored and relevant to operations. The links on the left align to traditional IPB products, and the links on the right align to PNA. The order of battle (OOB) tab located in the upper left links to a different SharePoint site that breaks down the enemy by its warfighting capabilities. The PNA tabs on the right are specific to the environment and the operating nodes within that particular MAGTF's area of operations.

### Anticipatory

To accommodate follow-on questions following the IPB, the G-2 typically breaks products down from a macro level to a micro level to further facilitate follow-on queries. Using the example of the dashboard depicted above to support this macro to micro approach, we will consider the following question: "Where are the main supply routes and alternate supply routes located in the MEF's area of operations?" To answer the question, a user of the SharePoint dashboard merely needs to click on the ground lines of communications (GLOC) tab to access a graphic displaying the GLOC relating to operating areas or static positions. A separate tab will depict the time-distance analysis for traveling between locations via organic assets and the current battlespace owner's tactics, techniques, and procedures. As the user acquires additional information on the routes connecting operating areas, questions will invariably follow. In anticipation of this, the dashboard construct further enables the user the ability to quickly dive into a particular route by clicking on the name of that route. This then takes the user to a tactical route assessment (TRA) that covers route specifics along with an assessment as to the probability of disruptions occurring along the route. Two slides later, the TRA informs further assumptions and intelligence queries. To address these micro-level details concerning a particular GLOC, an additional link on

the TRA titled “enhanced route study” takes the user to a very detailed depiction of the route, which includes the current imagery products, elevation profiles, and analyses on historic kinetic activity. As an interactive tool, a SharePoint site enables a user to quickly navigate and obtain the level of detail he needs to make an informed decision. Further amplification of the following IPB products is as follows: GLOC assessment, TRA, and enhanced route study.

**GLOC.** The LCE intelligence section produces the GLOC assessment, which serves as its contribution to the federated production of MAGTF intelligence. The purpose of this product is to provide an assessment of the probability of a disruption occurring along a GLOC that is directed at mounted movements. A disruption can consist of all things related to assessed enemy actions, terrain, and weather effects. The route colors indicate the likelihood of a disruption occurring against a mounted movement. (See Map 2.) This particular assessment process involves five criteria following the initial IPB: trafficability, weather effects, kinetic activity, IED strike-to-find ratio, and indications and warnings. These metrics are specifically suited to the LCE’s mission and the environment but pertain/apply to the entire MAGTF. For instance, in a

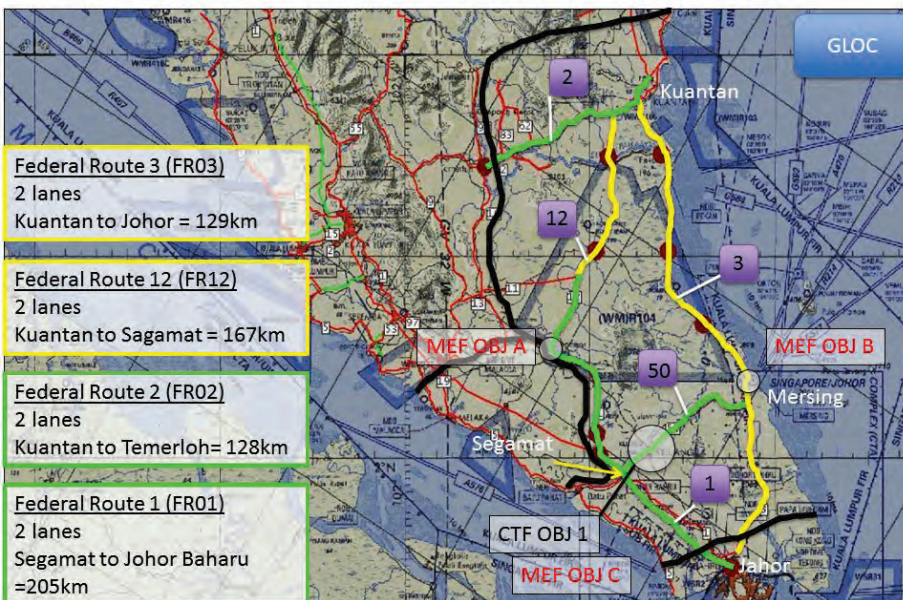


Map 3.

permissive environment such as a humanitarian assistance/disaster relief, the IED strike-to-find ratio would not be an appropriate metric. Instead, a new category, such as the status of dislocated civilians along GLOCs, might be more apt. In a kinetic environment, a map chip would depict significant activities (SIGACTs) and charts showing a seven-

day trend and narrative of routes separated by region. In a kinetic environment like Afghanistan, in addition to broad attack categories such as IED and direct/indirect fire, GLOC charts and analyses were used to provide data on IED types because of the considerably greater threat posed by such weapons to mounted movements. Specifically, charts display information relating to an IED initiation mechanism and the net weight of explosives used. Charts depicting the frequency of four weeks of SIGACTs provide a basis for comparison. Though the GLOC tab serves the purpose of providing an executive-level assessment by region, additional detail is available on specific routes.

**TRA.** The TRA consists of two PowerPoint slides that provide more detail on the status of a particular route. The first slide (see Map 3) depicts the overall assessment of the route. This includes a listing of the five assessment criteria stated above, wherein route colors provide a current assessment. A narrative informing the probability of a disruption directed at mounted movements along a specific route is also provided. Lastly, a graphic depiction of the route displays the locations of the most re-



Map 2.

cent seven days of SIGACTs in colored icons along with an assessment of the three weeks' significant events in black and white. This graphic also displays a call-out box depicting specific events or forecasted disruptions along with accompanying grid coordinates. The depiction of the SIGACTs also provides a graphic density representation of kinetic activity along that route.

The next slide (see Map 4) displays a time/event wheel of the SIGACTs, by type, in the battlespace over the previous seven days, providing opera-

**A user of the enhanced route study is able to navigate to this product via a tab displayed on the first slide of the TRA.**

tors with a brief understanding of the day and time of when events occurred or are most likely to occur. Second, a glide slope chart depicting one month of SIGACTs is broken down by type to show increased/decreased levels of activity. Lastly, and on the bottom of this slide, another glide slope chart depicts the effects of SIGACTs that have occurred along a specific route, broken down by KIA/WIA and mobility kills. This glide slope chart puts the SIGACTs into perspective; e.g., just because a route has consistent small arms fire, it does not necessarily rank high with respect to the probability of disrupting a mounted movement in a Mine Resistant Armored Personnel Carrier. These two slides are, or can be, updated weekly and displayed on SharePoint to be pulled at the user's convenience. These slides enable the LCE intelligence section to satisfy multiple requests for information and enable a planner to plan operations to an acceptable level of risk. However, more detail on a specific route is available via an enhanced route study. A user of the enhanced route study is able to navigate to this product via a tab displayed on the first slide of the TRA.

*Enhanced route study.* An enhanced route study is a fused product that pro-

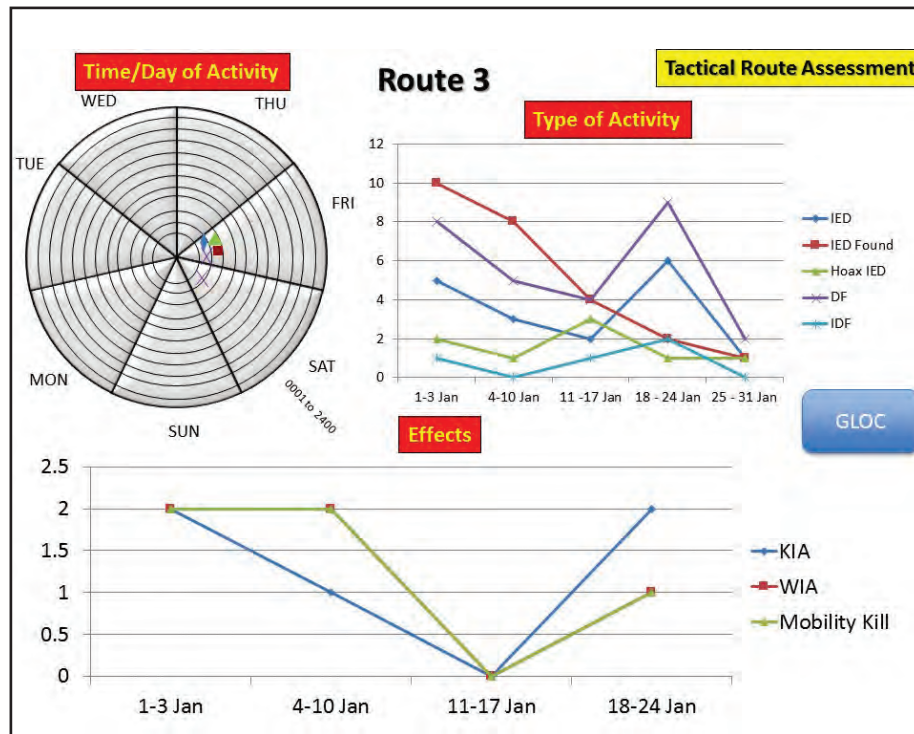
vides the user finite details on a specific route. It serves as the micro-level construct of the PNA concept (macro/GLOC assessment to TRA to micro/enhanced route study). The following is a specific list of analyses produced within an enhanced route study:

- Recent, high quality, multi-spectral (color) imagery.
- Coordinates derived from geo-rectified, commercially based imagery.
- Annotations of choke points, such as wadis and bridges, and their respective measurements.

- Friendly force locations and routes within proximity.
- Overview imagery slide allowing the user to jump to specific locations along a route and back to the overview.
- SIGACT activity within 180 days, broken down by IED size, IED type,

strike-to-find ratio, and SIGACT frequency.

- IED strike, IED find, and small arms fire depicted on overview imagery to show clusters of activity.
- SIGACTs depicted on close-up imagery to determine if enemy forces use micro-terrain, local national routes, local national compounds, etc., to facilitate attacks.
- Line-of-sight study showing areas visible within 500m of route.
- Elevation profiles showing changes in elevation along routes and areas of concern to mounted movements because of significant changes in slope.
- Time/distance from beginning to end of a route showing the average time to travel the route with a route clearance platoon and without.
- Topographic product of the area showing surrounding routes and friendly force locations in reference to major logistical hubs within the area of operations.
- Complete assessment, taking into consideration all sources of intelligence previously stated in order to enhance the product's ability to reduce uncertainty on the battlefield and provide commanders with a more complete picture.



Map 4.

The enhanced route study serves as a fused product that incorporates all capabilities resident in the intelligence cell of the LCE. An imagery analyst (0241) exploits raw imagery. A topographic Marine (0261) produces a line-of-sight study and elevation profile data, and the all-source intelligence analysts (0231) analyze SIGACT data. An enhanced route study can include hundreds of PowerPoint slides based on the length of the route. To shape the efficiency of this product, hyperlinks within an overview slide with segmented boxes enable the user to pull data on exact locations. As the micro-level product of a GLOC study, a user obtains a greater understanding of the environment.

**Conclusion**

SharePoint, displayed under the IPB(plus) dashboard concept, meets the needs of our decision makers. The ability to navigate through its interactive format and access specific information

within three clicks also enables decision makers to make informed decisions in a quick and efficient manner. The ability to transition back and forth between macro-level and micro-level intelligence information leaves no stone unturned and is anticipatory of queries.

The example referenced in this article began with the macro/GLOC assessment, which led to the TRA and ended at the micro/enhanced route study. If intelligence professionals adopt this dashboard concept, OPT/staff members will greatly appreciate its interactive nature, and in turn, the OPT will not suffer from the inundation of information provided in the initial IPB brief. Lastly, it is important to note that this concept has proven to be effective in shaping the decisions made by operators within the LCE and the MAGTF writ large.

**Note**

1. Node: A location in a mobility system where a movement requirement is originated, processed for onward movement, or terminated.

>Editor's Note: The author used the following publications in the development of this article: MSTP, Logistics Planner's Guide Pamphlet, (Quantico, VA: 29 June 2011); Headquarters Marine Corps, MCDP 2, Intelligence, (Washington, DC: 7 June 1997); Headquarters Marine Corps, MCRP 2-10B.1, Intelligence Preparation of the Battlespace, (Washington, DC: November 2014); and Joint Staff, JP 2-01.3, Joint Intelligence Preparation of the Operational Environment, (Washington, DC: 21 May 2014).



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